Figure- 1
Superoxide dismutase activity in the heart of Control and experimental rats.

Table- 2
Superoxide dismutase activity in the heart of Control and experimental rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>$V_{\text{max}}$(U/mg protein)</th>
<th>$K_m$(µM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control adult</td>
<td>38.25 ± 1.12 $^a$</td>
<td>1.15 ± 0.08 $^a$</td>
</tr>
<tr>
<td>Control neonate</td>
<td>20.94 ± 1.19</td>
<td>1.40 ± 0.05</td>
</tr>
<tr>
<td>Hx</td>
<td>19.67 ± 1.05 $^b$</td>
<td>1.85 ± 0.05 $^b$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>23.52 ± 1.10 $^c$</td>
<td>1.00 ± 0.10 $^c$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>21.09 ± 1.05 $^c$</td>
<td>1.40 ± 0.05 $^c$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>26.13 ± 1.10 $^{b,d}$</td>
<td>1.75 ± 0.10 $^{b,d}$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>18.77 ± 1.05 $^{b,d}$</td>
<td>0.99 ± 0.05 $^{b,d}$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>19.43 ± 1.07 $^{b,d}$</td>
<td>0.80 ± 0.05 $^{b,d}$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001, $^b$ p<0.01 when compared with control. $^c$ p<0.01, $^d$ p<0.001 when compared with hypoxic group. $^g$ p<0.01 when compared with Hx + G + O

Figure-2
Superoxide dismutase activity in the cerebral cortex of Control and experimental rats.

Table-3
Superoxide dismutase activity in the cerebral cortex of Control and experimental rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>(V_{\text{max}}) (U/mg protein)</th>
<th>(K_m) (µM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control adult</td>
<td>38.56 ± 0.10 (^b)</td>
<td>1.04 ± 0.15 (^a)</td>
</tr>
<tr>
<td>Control neonate</td>
<td>29.00 ± 0.10</td>
<td>1.53 ± 0.05</td>
</tr>
<tr>
<td>Hx</td>
<td>20.05 ± 0.05 (^b)</td>
<td>1.50 ± 0.30</td>
</tr>
<tr>
<td>Hx + G</td>
<td>28.25 ± 0.15 (^a,c)</td>
<td>1.52 ± 0.02</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>28.80 ± 0.10 (^d)</td>
<td>1.25 ± 0.02 (^b,d)</td>
</tr>
<tr>
<td>Hx + O</td>
<td>35.15 ± 0.05 (^b,d)</td>
<td>1.35 ± 0.15 (^a,c)</td>
</tr>
<tr>
<td>Hx + E</td>
<td>18.22 ± 0.15 (^b,c,e)</td>
<td>1.55 ± 0.06</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>19.30 ± 0.10 (^b,c,e)</td>
<td>1.50 ± 0.05</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats. 
\(^a\) p<0.01, \(^b\) p<0.001 when compared with control. \(^c\) p<0.01, \(^d\) p<0.001 when compared with hypoxic group. \(^e\) p<0.001 when compared with Hx + G + O.

Figure- 3
Catalase activity in the heart of Control and experimental rats.

![Graph showing catalase activity in the heart of Control and experimental rats.](image)

Table- 4
Catalase activity in the heart of Control and experimental rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>( V_{\text{max}} ) (U/mg protein)</th>
<th>( K_m ) (µM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control adult</td>
<td>44.00 ± 0.20</td>
<td>3.30 ± 0.01</td>
</tr>
<tr>
<td>Control neonate</td>
<td>27.00 ± 0.02</td>
<td>2.65 ± 0.15</td>
</tr>
<tr>
<td>Hx</td>
<td>15.50 ± 0.05</td>
<td>1.80 ± 0.01</td>
</tr>
<tr>
<td>Hx + G</td>
<td>26.50 ± 0.10</td>
<td>2.45 ± 0.25</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>21.50 ± 0.05</td>
<td>2.45 ± 0.01</td>
</tr>
<tr>
<td>Hx + O</td>
<td>12.50 ± 0.05</td>
<td>2.50 ± 0.10</td>
</tr>
<tr>
<td>Hx + E</td>
<td>16.98 ± 0.15</td>
<td>2.75 ± 0.02</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>17.15 ± 0.10</td>
<td>2.55 ± 0.01</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\[ \text{a} \ p<0.05, \ \text{b} \ p<0.01, \ \text{c} \ p<0.001 \ \text{when compared with control.} \ \text{d} \ p<0.05, \ \text{e} \ p<0.01, \ \text{f} \ p<0.001 \ \text{when compared with hypoxic group.} \ \text{g} \ p<0.01 \ \text{when compared with Hx + G + O.} \]

Figure- 4
Catalase activity in the cerebral cortex of Control and experimental rats.

Table- 5
Catalase activity in the cerebral cortex of Control and experimental rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>$V_{\text{max}}$(U/mg protein)</th>
<th>$K_{\text{m}}$(µM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control adult</td>
<td>$48.85 \pm 0.15^b$</td>
<td>$3.50 \pm 0.10^b$</td>
</tr>
<tr>
<td>Control neonate</td>
<td>$33.10 \pm 0.09$</td>
<td>$2.20 \pm 0.10$</td>
</tr>
<tr>
<td>Hx</td>
<td>$19.60 \pm 0.04^b$</td>
<td>$1.55 \pm 0.05^a$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>$18.35 \pm 0.03^b$</td>
<td>$2.35 \pm 0.05^c$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>$30.50 \pm 0.05^{a,d}$</td>
<td>$2.40 \pm 0.01^b$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>$29.90 \pm 0.10^{a,d}$</td>
<td>$2.50 \pm 0.01^c$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>$17.40 \pm 0.10^{b,c,e}$</td>
<td>$2.12 \pm 0.01^e$</td>
</tr>
<tr>
<td>Hx + G + E+ O</td>
<td>$18.20 \pm 0.10^{b,c,e}$</td>
<td>$1.80 \pm 0.01^e$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

* $^a$ p<0.01, $^b$ p<0.001 when compared with control. $^c$ p<0.01, $^d$ p<0.001 when compared with hypoxic group. $^e$ p<0.001 when compared with Hx + G + O.

Figure- 5
T3 content in the heart of control and experimental neonatal rats.

Table- 6
T3 content in the heart of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Content of T3 in ng/mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>2.29 ± 0.11</td>
</tr>
<tr>
<td>Hx</td>
<td>1.56 ± 0.12</td>
</tr>
<tr>
<td>Hx + G</td>
<td>2.46 ± 0.17</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>2.31 ± 0.16</td>
</tr>
<tr>
<td>Hx + O</td>
<td>1.91 ± 0.16</td>
</tr>
<tr>
<td>Hx + E</td>
<td>0.91 ± 0.16</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>1.02 ± 0.15</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001, b p<0.01 when compared with control

Figure- 6
T3 concentration in the serum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Concentration of T3 in ng/mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>2.39± 0.12</td>
</tr>
<tr>
<td>Hx</td>
<td>1.22± 0.19 ( ^a )</td>
</tr>
<tr>
<td>Hx + G</td>
<td>2.33± 0.19 ( ^c )</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>2.40± 0.15 ( ^c )</td>
</tr>
<tr>
<td>Hx + O</td>
<td>1.17± 0.18 ( ^{a,c} )</td>
</tr>
<tr>
<td>Hx + E</td>
<td>0.75± 0.14 ( ^{b,c} )</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>1.06± 0.14 ( ^{b,c} )</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
\( ^a \) p<0.001, \( ^b \) p<0.01 when compared with control
\( ^c \) p<0.001 when compared with hypoxic group.
Figure- 7
Circulating insulin level in the plasma of control and experimental neonatal rats.

Table- 8
Circulating insulin level in the plasma of control and experimental groups of neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Concentration of insulin in µU/mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>118.82 ± 1.18</td>
</tr>
<tr>
<td>Hx</td>
<td>149.48 ± 1.36&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>215.65 ± 1.32&lt;sup&gt;a, b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>232.44 ± 1.24&lt;sup&gt;a, b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>40.44 ± 1.23&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>364.05 ± 1.29&lt;sup&gt;a, b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>345.15 ± 1.32&lt;sup&gt;a, b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
<sup>a</sup> p<0.001 when compared with control
<sup>b</sup> p<0.001 when compared with hypoxic group.
Real Time PCR amplification of insulin receptor mRNA from the heart of Control and experimental neonatal rats

Table 9
Real Time PCR amplification of insulin receptor mRNA from the heart of Control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>$0.63 \pm 0.03^{b}$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>$0.97 \pm 0.05^{b}$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>$1.24 \pm 0.08^{b}$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>$-0.19 \pm 0.01^{c}$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>$1.99 \pm 0.03^{a}$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>$1.50 \pm 0.05^{a}$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^{a}$ p<0.001, $^{b}$ p<0.01, $^{c}$ p<0.05 when compared to Control

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O,
Hypoxic rats glucose and oxygen treated - Hx+G+O, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 9
Scatchard analysis of $[^{125}]$I triiodothyronine binding against triiodothyronine in the heart of control and experimental neonatal rats.

Table- 10
Scatchard analysis of $[^{125}]$I triiodothyronine binding against triiodothyronine in the heart of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmol/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>851.01 ± 3.60</td>
<td>2.01 ± 0.14</td>
</tr>
<tr>
<td>Hx</td>
<td>471.52 ± 3.82 $^{a}$</td>
<td>2.50 ± 0.12 $^{b}$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>932.70 ± 2.90 $^{c}$</td>
<td>1.73 ± 0.10 $^{c}$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>773.32 ± 3.81 $^{c}$</td>
<td>1.31 ± 0.15 $^{c}$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>579.71 ± 2.52 $^{a, d}$</td>
<td>1.92 ± 0.14 $^{b, d}$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^{a}$ p<0.001, $^{b}$ p<0.05 when compared with control

$p<0.001$, $^{d}$ p<0.05 when compared with hypoxic group

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Figure- 10
Scatchard analysis of $^{125}$I triiodothyronine binding against triiodothyronine in the heart of control and experimental neonatal rats.

Table- 11
Scatchard analysis of $^{125}$I triiodothyronine binding against triiodothyronine in the heart of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>851.01± 3.60</td>
<td>2.01±0.14</td>
</tr>
<tr>
<td>Hx</td>
<td>471.52± 3.82 $^a$</td>
<td>2.50± 0.12 $^b$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>466.40±2.60 $^a$</td>
<td>1.90±0.10 $^b, c$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>414.41±4.50 $^a,d$</td>
<td>1.84±0.12 $^b,c$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001, $^b$ p<0.05 when compared with control

$^c$ p<0.001, $^d$ p<0.05 when compared with hypoxic group

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Table 12
GABA Content (µmoles/g wet wt.) in the brain regions of Control and Experimental Groups of Neonatal Rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>GABA Content (µmoles/g wet wt.)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cerebral cortex</td>
<td>Cerebellum</td>
</tr>
<tr>
<td>Control</td>
<td>7.50±1.2</td>
<td>6.45±1.2</td>
</tr>
<tr>
<td>Hx</td>
<td>2.26±1.5 a</td>
<td>2.02±1.0a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>7.25±1.4b</td>
<td>6.25±1.4b</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>9.76±1.1a,b</td>
<td>6.60±1.4b</td>
</tr>
<tr>
<td>Hx + O</td>
<td>7.05±1.1b</td>
<td>3.55±1.8b</td>
</tr>
<tr>
<td>Hx + E</td>
<td>4.35±1.5a,b</td>
<td>3.05±1.2a</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>5.42±1.2a,c</td>
<td>3.12±1.1a</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 rats.

a p<0.001 when compared to Control
b p<0.001, c p<0.01 when compared to hypoxic group

Table-13
5- HT and 5- hydroxyindole acetic acid Content (nmoles/g wet wt.) in the cerebellum of Control and Experimental Groups of Neonatal Rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Cerebellum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5- HT</td>
</tr>
<tr>
<td>Control</td>
<td>204.55 ± 3.19</td>
</tr>
<tr>
<td>Hx</td>
<td>346.56 ± 2.05&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>201.31 ± 2.50&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>212.27 ± 2.05&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>301.87 ± 2.10&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>365.45 ± 1.07&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>376.61 ± 1.76&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001 when compared to Control
<sup>b</sup> p<0.001 when compared to Hx

Table-14
5- HT and 5- hydroxyindole acetic acid Content (nmoles/g wet wt.) in the brain stem of Control and Experimental Groups of Neonatal Rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Brain stem</th>
<th>5- HT</th>
<th>5- HIAA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td></td>
<td>149.38 ± 2.05</td>
<td>71.55 ± 2.01</td>
</tr>
<tr>
<td>Hx</td>
<td></td>
<td>481.79 ± 4.19&lt;sup&gt;a&lt;/sup&gt;</td>
<td>42.03 ± 2.05&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td></td>
<td>126.11 ± 2.10&lt;sup&gt;b&lt;/sup&gt;</td>
<td>87.92 ± 1.55&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td></td>
<td>138.67 ± 2.05&lt;sup&gt;b&lt;/sup&gt;</td>
<td>78.78 ± 1.85&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td></td>
<td>242.92 ± 3.10&lt;sup&gt;a&lt;/sup&gt;</td>
<td>67.54 ± 1.10&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td></td>
<td>450.55 ± 2.07&lt;sup&gt;a&lt;/sup&gt;</td>
<td>31.55 ± 2.02&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td></td>
<td>457.97 ± 1.70&lt;sup&gt;a&lt;/sup&gt;</td>
<td>35.42 ± 3.15&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup>p<0.001 when compared to Control

<sup>b</sup>p<0.001 when compared to Hx

Figure- 11
Scatchard analysis of [³H] GABA binding against GABA to total GABA receptor in the cerebral cortex of control and experimental neonatal rats.

Table- 15
Scatchard analysis of [³H] GABA binding against GABA to total GABA receptor in the cerebral cortex of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>628.62 ± 4.22</td>
<td>20.20 ± 2.05</td>
</tr>
<tr>
<td>Hx</td>
<td>499.80 ± 2.55 &lt;sup&gt;a&lt;/sup&gt;</td>
<td>26.91 ± 3.12 &lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>669.81 ± 4.05 &lt;sup&gt;b&lt;/sup&gt;</td>
<td>18.50 ± 2.00 &lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>583.11 ± 3.12 &lt;sup&gt;b&lt;/sup&gt;</td>
<td>21.92 ± 2.50 &lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>533.92 ± 3.12 &lt;sup&gt;a,c&lt;/sup&gt;</td>
<td>12.90 ± 1.45 &lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001 when compared with control
<br><sup>b</sup> p<0.001, <sup>c</sup> p<0.01 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Figure- 12
Scatchard analysis of [3H] GABA binding against GABA to total GABA receptor in the cerebral cortex of control and experimental neonatal rats

Table- 16
Scatchard analysis of [3H] GABA binding against GABA to total GABA receptor in the cerebral cortex of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>628.62 ± 4.22</td>
<td>20.20 ± 2.05</td>
</tr>
<tr>
<td>Hx</td>
<td>499.80 ± 2.55 ( ^a )</td>
<td>26.91 ± 3.12 ( ^a )</td>
</tr>
<tr>
<td>Hx + E</td>
<td>418.62 ± 3.55 ( ^a, ^c )</td>
<td>10.90 ± 2.10 ( ^b )</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>319.53 ± 2.50 ( ^a, ^b )</td>
<td>7.83 ±1.80 ( ^b )</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\( ^a \) p<0.001 when compared with control

\( ^b \) p<0.001, \( ^c \) p<0.01 when compared with hypoxic group

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure - 13
Table - 17
Binding parameters of \[^{3}H\] GABA against GABA in the cerebral cortex of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Group</th>
<th>Best-fit model</th>
<th>Log (EC$_{50}$)-1</th>
<th>Log (EC$_{50}$)-2</th>
<th>$K_{i,(H)}$</th>
<th>$K_{i,(L)}$</th>
<th>Hill slope</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Two- site</td>
<td>-6.395</td>
<td>-3.643</td>
<td>1.488 x 10$^{-7}$</td>
<td>6.688 x 10$^{-5}$</td>
<td>-0.6888</td>
</tr>
<tr>
<td>Hx</td>
<td>Two- site</td>
<td>-6.419</td>
<td>-3.776</td>
<td>1.308 x 10$^{-7}$</td>
<td>6.196 x 10$^{-5}$</td>
<td>-0.6946</td>
</tr>
<tr>
<td>Hx + G</td>
<td>Two- site</td>
<td>-6.378</td>
<td>-3.112</td>
<td>1.443 x 10$^{-8}$</td>
<td>6.854 x 10$^{-4}$</td>
<td>-0.4960</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>Two- site</td>
<td>-6.365</td>
<td>-3.105</td>
<td>5.203 x 10$^{-8}$</td>
<td>6.773 x 10$^{-5}$</td>
<td>-0.6877</td>
</tr>
<tr>
<td>Hx + O</td>
<td>Two- site</td>
<td>-6.402</td>
<td>-3.725</td>
<td>1.397 x 10$^{-7}$</td>
<td>5.903 x 10$^{-3}$</td>
<td>-0.5808</td>
</tr>
<tr>
<td>Hx + E</td>
<td>Two- site</td>
<td>-7.371</td>
<td>-3.727</td>
<td>1.575 x 10$^{-8}$</td>
<td>7.099 x 10$^{-4}$</td>
<td>-0.6658</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>Two- site</td>
<td>-7.327</td>
<td>-3.742</td>
<td>1.672 x 10$^{-8}$</td>
<td>7.112 x 10$^{-4}$</td>
<td>-0.97543</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
Figure- 14
Scatchard analysis of \[^3H\] bicuculline binding against bicuculline to GABA\textsubscript{A} receptor in the cerebral cortex of control and experimental neonatal rats.

![Scatchard analysis graph](image)

Table- 18
Scatchard analysis of \[^3H\] bicuculline binding against bicuculline to GABA\textsubscript{A} receptor in the cerebral cortex of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>191.72 ± 1.88</td>
<td>6.40 ± 1.34</td>
</tr>
<tr>
<td>Hx</td>
<td>154.74 ± 2.05\textsuperscript{a}</td>
<td>9.21 ± 1.78\textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G</td>
<td>165.14 ± 2.66\textsuperscript{k,d}</td>
<td>10.70 ± 1.05\textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>173.51 ± 2.90\textsuperscript{k,c}</td>
<td>6.52 ± 1.15\textsuperscript{c}</td>
</tr>
<tr>
<td>Hx + O</td>
<td>142.70 ± 2.45\textsuperscript{a,d}</td>
<td>11.23 ± 2.01\textsuperscript{a}</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
\textsuperscript{a} p<0.001, \textsuperscript{b} p<0.01 when compared with control
\textsuperscript{c} p<0.001, \textsuperscript{d} p<0.01 when compared with hypoxic group
Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Figure- 15
Scatchard analysis of [$^3$H] bicuculline binding against bicuculline to GABA<sub>A</sub> receptor in the cerebral cortex of control and experimental neonatal rats.

Table- 19
Scatchard analysis of [$^3$H] bicuculline binding bicuculline to GABA<sub>A</sub> receptor in the cerebral cortex of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>191.72 ± 1.88</td>
<td>6.40 ± 1.34</td>
</tr>
<tr>
<td>Hx</td>
<td>154.74 ± 2.05&lt;sup&gt;a&lt;/sup&gt;</td>
<td>9.21 ± 1.78&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>166.04 ± 2.12&lt;sup&gt;a&lt;/sup&gt;</td>
<td>9.38 ± 1.12&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>139.80 ± 2.15&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.79 ± 1.23&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001, <sup>b</sup> p<0.01 when compared with control
<sup>c</sup> p<0.001, <sup>d</sup> p<0.01 when compared with hypoxic group

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 16
Scatchard analysis of [3H] baclofen binding against baclofen to GABA B receptor in the cerebral cortex of control and experimental neonatal rats.

Table- 20
Scatchard analysis of [3H] baclofen binding against baclofen to GABA B receptor in the cerebral cortex of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>586.70 ± 4.55</td>
<td>18.13 ±1.25</td>
</tr>
<tr>
<td>Hx</td>
<td>388.65 ± 3.05 a</td>
<td>21.14 ± 2.45 a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>553.71 ± 3.35 d</td>
<td>21.49 ± 2.99 a</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>543.54 ± 3.55 d</td>
<td>14.16 ± 1.20 d</td>
</tr>
<tr>
<td>Hx + O</td>
<td>529.53 ± 4.06 c, d</td>
<td>13.12 ± 1.15 d</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001,  b p<0.01,  c p<0.05 when compared with control

d p<0.001 when compared with hypoxic group

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Figure- 17
Scatchard analysis of [³H] baclofen binding against baclofen to GABA B receptor in the cerebral cortex of control and experimental neonatal rats.

Table- 21
Scatchard analysis of [³H] baclofen binding against baclofen to GABA B receptor in the cerebral cortex of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bₘₐₓ (fmoles/mg protein)</th>
<th>K_d (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>586.70 ± 4.55</td>
<td>18.13 ± 1.25</td>
</tr>
<tr>
<td>Hx</td>
<td>388.65 ± 3.05 a</td>
<td>21.14 ± 2.45 a</td>
</tr>
<tr>
<td>Hx + E</td>
<td>325.22 ± 2.45 a,c</td>
<td>7.42 ± 1.25 d</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>374.80 ± 3.12 a</td>
<td>11.20 ± 2.20 d</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001, b p<0.01, c p<0.05 when compared with control

d p<0.001, e p<0.05 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 18
Real Time PCR amplification of GABA$_{A_1}$ receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rats

Table- 22
Real Time PCR amplification of GABA$_{A_1}$ receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rat

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.25 ± 0.02</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.06 ± 0.008</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.07 ± 0.01</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.27 ± 0.02</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.30 ± 0.01</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.28 ± 0.02</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

- a p<0.001, b p<0.05 when compared to Control, c p<0.001, d p<0.01 when compared to Hx.

Real Time PCR amplification of GABA<sub>A<sub>δ</sub> receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rats

![Graph showing Log RQ values for different experimental groups.]

**Table- 23**

Real Time PCR amplification of GABA<sub>A<sub>δ</sub> receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.20 ± 0.01&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.05 ± 0.002&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.01 ± 0.003&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.08 ± 0.01&lt;sup&gt;b, c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.27 ± 0.01&lt;sup&gt;a, d&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.19 ± 0.01&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001,  <sup>b</sup> p<0.05 when compared to Control,  <sup>c</sup> p<0.001,  <sup>d</sup> p<0.01 when compared to hypoxic group

Real Time PCR amplification of GABA\textsubscript{Aγ3} receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rats

Table- 24
Real Time PCR amplification of GABA\textsubscript{Aγ3} receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-1.97 ± 0.09\textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.32 ± 0.04\textsuperscript{b}</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-1.19 ± 0.03\textsuperscript{c, d}</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-1.13 ± 0.04\textsuperscript{c, d}</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-2.1 ± 0.08\textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-1.87 ± 0.09\textsuperscript{a}</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
\textsuperscript{a} p<0.001, \textsuperscript{c} p<0.01 when compared to Control
\textsuperscript{b} p<0.001, \textsuperscript{d} p<0.01 when compared to hypoxic group

Real Time PCR amplification of GABA$_{A_\delta}$ receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rats

Table- 25
Real Time PCR amplification of GABA$_{A_\delta}$ receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>0.19 ± 0.02</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.31 ± 0.07</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.08 ± 0.04</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.73 ± 0.05</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-1.44 ± 0.06</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-1.18 ± 0.06</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

* $p<0.05$, ** $p<0.01$, *** $p<0.001$ when compared to Control

Figure- 22
Real Time PCR amplification of GABA<sub>B</sub> receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rats

Table- 26
Real Time PCR amplification of GABA<sub>B</sub> receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.46 ± 0.05&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.21 ± 0.10&lt;sup&gt;b,d&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.27 ± 0.08&lt;sup&gt;b,d&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.36 ± 0.05&lt;sup&gt;c,d&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.75 ± 0.10&lt;sup&gt;a,c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.57 ± 0.02&lt;sup&gt;a,c&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
<sup>a</sup>p<0.001, <sup>b</sup>p<0.001, <sup>c</sup>p<0.01, <sup>d</sup>p<0.05 when compared to Control

Figure- 23
Real Time PCR amplification of GAD mRNA from the cerebral cortex of control and experimental neonatal rats

Table- 27
Real Time PCR amplification of GAD mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.87 ± 0.05</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.13 ± 0.05</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.10 ± 0.03</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.35 ± 0.06</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.76 ± 0.07</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.55 ± 0.02</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\( ^a \) p<0.001, \(^c\) p<0.01 when compared to Control

\( ^b \) p<0.001, \(^d\) p<0.01 when compared to hypoxic group

Figure-24

GABA$_{\alpha1}$ receptor expression in the cerebral cortex of control and experimental neonatal rats

Control  Hx  Hx + G  Hx + G + O  Hx + E  Hx + G + E + O

Table- 28
GABAAα1 receptor expression in the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Mean Pixel intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>32.13 ± 3.45</td>
</tr>
<tr>
<td>Hx</td>
<td>12.24 ± 2.20&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>28.94 ± 3.12&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>34.25 ± 4.01&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>16.80 ± 2.11&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>8.94 ± 1.02&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>9.95 ± 1.10&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
<sup>a</sup>p<0.001 when compared to Control
<sup>b</sup>p<0.001 when compared to hypoxic group

### Table- 29

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>164.19 ± 2.55</td>
<td>5.63 ± 1.00</td>
</tr>
<tr>
<td>Hx</td>
<td>341.15 ± 4.01&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.92 ± 1.12&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>184.52 ± 2.50&lt;sup&gt;d&lt;/sup&gt;</td>
<td>5.15 ± 1.01&lt;sup&gt;d&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>165.00 ± 1.55&lt;sup&gt;d&lt;/sup&gt;</td>
<td>4.89 ± 1.00&lt;sup&gt;d&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>258.16 ± 3.05&lt;sup&gt;a, c&lt;/sup&gt;</td>
<td>5.36 ± 1.04&lt;sup&gt;d&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001,  <sup>b</sup> p<0.01,  <sup>c</sup> p<0.05 when compared with control

<sup>d</sup> p<0.001,  <sup>e</sup> p<0.01 when compared with hypoxic group

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Scatchard analysis of [3H] 5-HT binding against 5-HT to total 5-HT receptor in the cerebral cortex of control and experimental neonatal rats.

Table 30

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>164.19 ± 2.55</td>
<td>5.63 ± 1.00</td>
</tr>
<tr>
<td>Hx</td>
<td>341.15 ± 4.01&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.92 ± 1.12&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>383.49 ± 3.56&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.54 ± 1.10&lt;sup&gt;e&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>332.70 ± 3.33&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.15 ± 1.02&lt;sup&gt;e&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001,  <sup>b</sup> p<0.01,  <sup>c</sup> p<0.05 when compared with control
<sup>d</sup> p<0.001,  <sup>e</sup> p<0.01 when compared with hypoxic group

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 27
Scatchard analysis of $[^3]$H ketanserin binding against ketanserin to 5-HT$_{2A}$ receptor in the cerebral cortex of control and experimental neonatal rats.

Table- 31
Scatchard analysis of $[^3]$H ketanserin binding against ketanserin to 5-HT$_{2A}$ receptor in the cerebral cortex of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmol/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>192.48 ± 1.45</td>
<td>9.99 ± 2.45</td>
</tr>
<tr>
<td>Hx</td>
<td>326.19 ± 2.34$^a$</td>
<td>7.28 ± 2.12$^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>213.62 ± 2.66$^{b,e}$</td>
<td>6.15 ± 2.05$^{a,b,e}$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>179.15 ± 2.30$^{c,d}$</td>
<td>7.55 ± 2.45$^a$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>249.29 ± 2.50$^{b,e}$</td>
<td>6.30 ± 1.85$^{a,b,e}$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001,  $^b$ p<0.01,  $^c$ p<0.05 when compared with control
$^d$ p<0.001,  $^e$ p<0.01 when compared with hypoxic group

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Scatchard analysis of $[^3]$H ketanserin binding against ketanserin to 5-HT$_{2A}$ receptor in the cerebral cortex of control and experimental neonatal rats.

Table- 32
Scatchard analysis of $[^3]$H ketanserin binding against ketanserin to 5-HT$_{2A}$ receptor in the cerebral cortex of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>192.48 ± 1.45</td>
<td>9.99 ± 2.45</td>
</tr>
<tr>
<td>Hx</td>
<td>326.19 ± 2.34$^a$</td>
<td>7.28 ± 2.12$^a$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>232.58 ± 2.60$^{b,d}$</td>
<td>6.01 ± 2.10$^a$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>205.12 ± 2.50$^{b,d}$</td>
<td>6.12 ± 3.12$^a$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001, $^b$ p<0.01, $^c$ p<0.05 when compared with control

$^d$ p<0.001, $^e$ p<0.01 when compared with hypoxic group

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure 29
Real Time PCR amplification of 5-HT\textsubscript{2A} receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rats

![Bar chart showing Log RQ values for different experimental groups.]

Table 33
Real Time PCR amplification of 5-HT\textsubscript{2A} receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>4.23 ± 0.10\textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G</td>
<td>1.32 ± 0.12\textsuperscript{b}</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.09 ± 0.03\textsuperscript{b}</td>
</tr>
<tr>
<td>Hx + O</td>
<td>2.12 ± 0.12\textsuperscript{b, c}</td>
</tr>
<tr>
<td>Hx + E</td>
<td>4.99 ± 0.19\textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>3.98 ± 0.10\textsuperscript{a}</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
\textsuperscript{a} p<0.001 \textsuperscript{b} p<0.05 when compared to Control \textsuperscript{c} p<0.001 when compared to hypoxic group
Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O,
Hypoxic rats glucose and oxygen treated - Hx+G+O, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 30
Real Time PCR amplification of 5-HT transporter mRNA from the cerebral cortex of control and experimental neonatal rats

Table- 34
Real Time PCR amplification of 5-HT transporter mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>4.34 ± 0.08</td>
</tr>
<tr>
<td>Hx + G</td>
<td>2.24 ± 0.09</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.97 ± 0.05</td>
</tr>
<tr>
<td>Hx + O</td>
<td>2.98 ± 0.12</td>
</tr>
<tr>
<td>Hx + E</td>
<td>5.65 ± 0.24</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>3.66 ± 0.10</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared to Control  
b p<0.001,  
c p<0.01 when compared to hypoxic group

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O,  
Hypoxic rats glucose and oxygen treated - Hx+G+O, Hypoxic rats epinephrine treated – Hx + E,  
Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 31

5-HT$_{2A}$ receptor expression in the cerebral cortex of control and experimental neonatal rats

Control, Hx, Hx + G, Hx + G + O, Hx + O, Hx + E, Hx + G + E + O

**Table- 35**

5-HT$_{2A}$ receptor expression in the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Mean Pixel intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>22.45 ± 3.50</td>
</tr>
<tr>
<td>Hx</td>
<td>42.32 ± 4.20</td>
</tr>
<tr>
<td>Hx + G</td>
<td>24.50 ± 3.05</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>21.25 ± 2.05</td>
</tr>
<tr>
<td>Hx + O</td>
<td>36.80 ± 3.46</td>
</tr>
<tr>
<td>Hx + E</td>
<td>44.50 ± 5.05</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>42.85 ± 4.10</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

*a* *p*<0.001 when compared to Control

*b* *p*<0.001 when compared to hypoxic group

Figure- 32
5-HT transporter expression in the cerebral cortex of control and experimental neonatal rats


39
Table-36
5-HT transporter expression in the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Mean Pixel intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>32.50 ± 3.50</td>
</tr>
<tr>
<td>Hx</td>
<td>79.20 ± 3.00&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>34.45 ± 2.50&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>31.25 ± 3.05&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>47.54 ± 2.55</td>
</tr>
<tr>
<td>Hx + E</td>
<td>72.65 ± 5.00&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>83.45 ± 5.50&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup>p<0.001 when compared to Control
<sup>b</sup>p<0.001 when compared to hypoxic group

Figure- 33
Scatchard analysis of [³H] QNB binding against atropine to total muscarinic receptor in the cerebral cortex of control and experimental neonatal rats.

Table- 37
Scatchard analysis of [³H] QNB binding against atropine to total muscarinic receptor in the cerebral cortex of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmole/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>248.70 ± 4.20</td>
<td>2.32 ± 1.02</td>
</tr>
<tr>
<td>Hx</td>
<td>158.11 ± 2.15 &lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.09 ± 1.12</td>
</tr>
<tr>
<td>Hx + G</td>
<td>225.64 ± 2.02 &lt;sup&gt;b&lt;/sup&gt;</td>
<td>3.58 ± 2.10 &lt;sup&gt;a,b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>194.34 ± 1.23 &lt;sup&gt;b&lt;/sup&gt;</td>
<td>2.32 ± 2.15 &lt;sup&gt;a,b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>177.48 ± 1.85 &lt;sup&gt;a,b&lt;/sup&gt;</td>
<td>1.01 ± 1.00 &lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001 when compared with control
<sup>b</sup> p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Figure- 34
Scatchard analysis of [³H] QNB binding against atropine to total muscarinic receptor in the cerebral cortex of control and experimental neonatal rats.

Table- 38
Scatchard analysis of [³H] QNB binding against atropine to total muscarinic receptor in the cerebral cortex of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmole/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>248.70 ± 3.6</td>
<td>2.32 ±0.14</td>
</tr>
<tr>
<td>Hx</td>
<td>158.11 ± 3.8 a</td>
<td>2.09 ± 0.12</td>
</tr>
<tr>
<td>Hx + E</td>
<td>98.73 ± 2.6 a, b</td>
<td>2.31 ±0.10 b</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>131.82 ± 4.5 a, b</td>
<td>2.03 ±0.12 b</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared with control
b p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 35
Real Time PCR amplification of Muscarinic M₁ receptor mRNA from the cerebral cortex of control and experimental neonatal rats

![Graph showing real-time PCR amplification of Muscarinic M₁ receptor mRNA from the cerebral cortex of control and experimental neonatal rats.](image)

Table- 39
Real Time PCR amplification of Muscarinic M₁ receptor mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-2.12 ± 0.13&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.44 ± 0.08&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.23 ± 0.03&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.97 ± 0.07&lt;sup&gt;a,c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-3.24 ± 0.24&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-2.87 ± 0.11&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consists 6-8 neonatal rats.

-<sup>a</sup>p<0.001 when compared to Control
-<sup>b</sup>p<0.001, <sup>c</sup>p<0.01 when compared to hypoxic group

Real Time PCR amplification of Muscarinic M$_2$ receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rats

![Bar chart showing Log RQ for different experimental groups.](chart.png)

### Table 40
Real Time PCR amplification of Muscarinic M$_2$ receptor mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-1.46 ± 0.09 $^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.23 ± 0.05 $^b$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.10 ± 0.01 $^b$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.76 ± 0.04 $^{a,c}$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-2.13 ± 0.17 $^a$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-1.95 ± 0.10 $^a$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001 when compared to Control $^b$ p<0.001, $^c$ p<0.01 when compared to hypoxic group

Figure- 37
Real Time PCR amplification of Muscarinic M₃ receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rats

Table- 41
Real Time PCR amplification of Muscarinic M₃ receptor mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-1.46 ± 0.09</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.23 ± 0.05</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.10 ± 0.01</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.76 ± 0.04</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-2.13 ± 0.17</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-1.95 ± 0.10</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared to Control
b p<0.001, c p<0.01 when compared to hypoxic group

Real Time PCR amplification of choline acetyl transferase mRNA from the cerebral cortex of control and experimental neonatal rats.

Table- 42

Real Time PCR amplification of choline acetyl transferase mRNA from the cerebral cortex of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.98 ± 0.06a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.13 ± 0.02b</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.10 ± 0.01b</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.57 ± 0.03a,c</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-1.23 ± 0.07a</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.99 ± 0.09a</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared to Control  
b p<0.001, c p<0.01 when compared to hypoxic group

Figure- 39
Real Time PCR amplification of acetyl choline esterase mRNA from the cerebral cortex of control and experimental neonatal rats.

Table- 43
Real Time PCR amplification of acetyl choline esterase mRNA from the cerebral cortex of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>1.23 ± 0.05 a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.46 ± 0.02 b</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.33 ± 0.01 b</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.88 ± 0.03 a, c</td>
</tr>
<tr>
<td>Hx + E</td>
<td>1.46 ± 0.05 a</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>1.02 ± 0.08 a</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared to Control b p<0.001, c p<0.01 when compared to hypoxic group
Figure- 40
Real Time PCR amplification of Hif 1 mRNA from the cerebral cortex of control and experimental neonatal rats.

Table- 44
Real Time PCR amplification of Hif 1 mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>2.72 ± 0.36</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.48 ± 0.13</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.39 ± 0.09</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.67 ± 0.07</td>
</tr>
<tr>
<td>Hx + E</td>
<td>2.05 ± 0.15</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.46 ± 0.12</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\( a \) p<0.001, \( b \) p<0.05 when compared to Control \( c \) p<0.001 when compared to hypoxic group
Figure- 41
Real Time PCR amplification of SOD mRNA from the cerebral cortex of control and experimental neonatal rats.

Table- 45
Real Time PCR amplification of SOD mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-1.22 ± 0.05&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.45 ± 0.01&lt;sup&gt;b,c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.32 ± 0.04&lt;sup&gt;b,c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.98 ± 0.07&lt;sup&gt;a,d&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-1.12 ± 0.08&lt;sup&gt;a,c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-1.09 ± 0.09&lt;sup&gt;a,d&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
<sup>a</sup> p<0.001, <sup>b</sup> p<0.01, <sup>c</sup> p<0.05 when compared to Control <sup>b</sup> p<0.001 when compared to Hx.
Figure- 42
Real Time PCR amplification of GPx mRNA from the cerebral cortex of control and experimental neonatal rats.

Table- 46
Real Time PCR amplification of GPx mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-1.76 ± 0.08 a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.79 ± 0.06 b, d</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.55 ± 0.09 b, d</td>
</tr>
<tr>
<td>Hx + O</td>
<td>1.01 ± 0.06 b, c</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-1.85 ± 0.12 a</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-1.65 ± 0.11 a</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

*a p<0.001, *c p<0.01, *d p<0.05 when compared to Control
*b p<0.001 when compared to Hx.
Figure- 43
Real Time PCR amplification of BAX mRNA from the cerebral cortex of control and experimental neonatal rats.

Table- 47
Real Time PCR amplification of BAX mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>0.14 ± 0.01 a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.11 ± 0.01 b</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.09 ± 0.02 b</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.13 ± 0.01 b</td>
</tr>
<tr>
<td>Hx + E</td>
<td>0.13 ± 0.01 a</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>0.10 ± 0.01 b</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats. 
a p<0.001 when compared to Control b p<0.001 when compared to Hx. Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Real Time PCR amplification of CREB mRNA from the cerebral cortex of control and experimental neonatal rats.

Table- 48
Real Time PCR amplification of CREB mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.99 ± 0.01 (^a)</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.35 ± 0.02 (^b)</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.32 ± 0.01 (^b)</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.13 ± 0.01 (^b)</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.69 ± 0.01 (^a)</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.59 ± 0.01 (^a)</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.  
\(^a\) p<0.001 when compared to Control \(^b\) p<0.001 when compared to Hx.  
Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O,  
Hypoxic rats glucose and oxygen treated - Hx+G+O, Hypoxic rats epinephrine treated – Hx + E,  
Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Table- 49
Real Time PCR amplification of phospholipase C mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>2.37 ± 0.01</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.36 ± 0.02</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.57 ± 0.01</td>
</tr>
<tr>
<td>Hx + O</td>
<td>1.37 ± 0.01</td>
</tr>
<tr>
<td>Hx + E</td>
<td>2.03 ± 0.01</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>1.67 ± 0.01</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

Figure- 46
Scatchard analysis of [³H] GABA binding against GABA to total GABA receptor in the cerebellum of control and experimental neonatal rats.

Table- 50
Scatchard analysis of [³H] GABA binding against GABA to total GABA receptor in the cerebellum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>71.50 ± 2.41</td>
<td>11.11 ± 0.95</td>
</tr>
<tr>
<td>Hx</td>
<td>50.01 ± 1.80 a</td>
<td>14.82 ± 0.82 a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>62.18 ± 1.50 b</td>
<td>9.85 ± 0.36 b</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>66.33 ± 2.00 b</td>
<td>12.54 ± 0.42</td>
</tr>
<tr>
<td>Hx + O</td>
<td>55.34 ± 2.50 a</td>
<td>15.72 ± 0.54 a</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared with control
b p<0.001 when compared with hypoxic group.
Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Figure- 47
Scatchard analysis of $[^3]$H GABA binding against GABA to total GABA receptor in the cerebellum of control and experimental neonatal rats.

Table- 51
Scatchard analysis of $[^3]$H GABA binding against GABA to total GABA receptor in the cerebellum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>71.50 ± 2.41</td>
<td>11.11 ± 0.95</td>
</tr>
<tr>
<td>Hx</td>
<td>50.01 ± 1.80$^a$</td>
<td>14.82 ± 0.82$^a$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>44.02 ± 3.20$^a$</td>
<td>10.46 ± 0.10$^b$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>45.50 ± 2.50$^a$</td>
<td>7.46 ± 0.11$^{a,b}$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001 when compared with control

$^b$ p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure - 48

Binding parameters of [$^3$H] GABA against GABA in the cerebellum of control and experimental neonatal rats.
Table - 52

Binding parameters of [³H] GABA against GABA in the cerebellum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Group</th>
<th>Best-fit model</th>
<th>Log (EC$_{50}$)-1</th>
<th>Log (EC$_{50}$)-2</th>
<th>$K_i$ (H)</th>
<th>$K_i$ (L)</th>
<th>Hill slope</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Two- site</td>
<td>-8.153</td>
<td>-4.545</td>
<td>3.6430 x 10$^9$</td>
<td>2.3086 x 10$^{-3}$</td>
<td>-0.6832</td>
</tr>
<tr>
<td>Hx</td>
<td>Two- site</td>
<td>-9.243</td>
<td>-5.398</td>
<td>4.2340 x 10$^{10}$</td>
<td>1.0560 x 10$^{-5}$</td>
<td>-0.6944</td>
</tr>
<tr>
<td>Hx + G</td>
<td>Two- site</td>
<td>-8.406</td>
<td>-4.580</td>
<td>4.0410 x 10$^{12}$</td>
<td>5.1230 x 10$^{-4}$</td>
<td>-0.6522</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>Two- site</td>
<td>-8.053</td>
<td>-4.567</td>
<td>4.2740 x 10$^{11}$</td>
<td>9.1930 x 10$^{-4}$</td>
<td>-0.5831</td>
</tr>
<tr>
<td>Hx + O</td>
<td>Two- site</td>
<td>-9.027</td>
<td>-4.706</td>
<td>5.0880 x 10$^{9}$</td>
<td>1.3380 x 10$^{-5}$</td>
<td>-0.7926</td>
</tr>
<tr>
<td>Hx + E</td>
<td>Two- site</td>
<td>-9.332</td>
<td>-5.508</td>
<td>5.7180 x 10$^{9}$</td>
<td>8.0440 x 10$^{-6}$</td>
<td>-0.6957</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>Two- site</td>
<td>-9.554</td>
<td>-5.554</td>
<td>5.0987 x 10$^{9}$</td>
<td>9.0023 x 10$^{-6}$</td>
<td>-0.7964</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats. Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 49
Scatchard analysis of $[^3]$H bicuculline binding against bicuculline to GABA$_A$ receptor in the cerebellum of control and experimental neonatal rats.

![Graph showing Scatchard analysis](image)

Table- 53
Scatchard analysis of $[^3]$H bicuculline binding against bicuculline to GABA$_A$ receptor in the cerebellum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>41.04 ± 3.20</td>
<td>13.50 ± 0.53</td>
</tr>
<tr>
<td>Hx</td>
<td>25.83 ± 1.25$^a$</td>
<td>8.10 ± 0.44$^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>41.87 ± 2.80$^b$</td>
<td>29.55 ± 0.62$^{a,b}$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>38.23 ± 2.15$^b$</td>
<td>27.31 ± 0.45$^{a,b}$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>34.06 ± 1.65$^{a,c}$</td>
<td>15.72 ± 0.24$^b$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001 when compared with control. $^b$ p<0.001, $^c$ p<0.01 when compared with Hx.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Figure 50
Scatchard analysis of [\textsuperscript{3}H] bicuculline binding against bicuculline to GABA\textsubscript{A} receptor in the cerebellum of control and experimental neonatal rats.

Table 54
Scatchard analysis of [\textsuperscript{3}H] bicuculline binding against bicuculline to GABA\textsubscript{A} receptor in the cerebellum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>41.04 ± 3.2</td>
<td>13.50 ± 0.53</td>
</tr>
<tr>
<td>Hx</td>
<td>25.83 ± 1.2\textsuperscript{a}</td>
<td>8.10 ± 0.44\textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + E</td>
<td>24.38 ± 2.6\textsuperscript{a}</td>
<td>7.86 ± 0.10\textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>29.07 ± 4.5\textsuperscript{a}</td>
<td>8.31 ± 0.12\textsuperscript{a}</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
\textsuperscript{a} p<0.001 when compared with control.
Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 51
Scatchard analysis of $[^3]$H baclofen binding against baclofen to GABA
 receptors in the cerebellum of control and experimental neonatal rats.

![Graph showing Scatchard analysis of [3]H baclofen binding against baclofen to GABA receptor in the cerebellum of control and experimental neonatal rats.]

Table- 55
Scatchard analysis of $[^3]$H baclofen binding against baclofen to GABA
 receptors in the cerebellum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>$K_d$ (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>66.07 ± 3.0</td>
<td>10.13 ± 1.5</td>
</tr>
<tr>
<td>Hx</td>
<td>38.65 ± 1.6$^a$</td>
<td>8.22 ± 1.0$^b$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>57.90 ± 2.4$^{d,c}$</td>
<td>9.19 ± 0.95$^c$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>59.50 ± 3.1$^{d,c}$</td>
<td>9.75 ± 1.2$^c$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>48.86 ± 2.1$^{a,c}$</td>
<td>6.69 ± 0.89$^a$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
$^a$ p<0.001, $^b$ p<0.01, $^c$ p<0.05 when compared with control
$^d$ p<0.001, $^e$ p<0.01 when compared with hypoxic group.
Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Figure- 52
Scatchard analysis of $[^3]$H baclofen binding against baclofen to GABA$_B$ receptor in the cerebellum of control and experimental neonatal rats.

Table- 56
Scatchard analysis of $[^3]$H baclofen binding against baclofen to GABA$_B$ receptor in the cerebellum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>$K_d$ (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>66.07 ± 3.0</td>
<td>10.13 ± 1.5</td>
</tr>
<tr>
<td>Hx</td>
<td>38.65 ± 1.6$^a$</td>
<td>8.22 ± 1.00$^b$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>42.29 ± 1.5$^a, c$</td>
<td>15.32 ± 0.99$^{b, d}$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>51.19 ± 1.5$^{a, c}$</td>
<td>12.80 ± 0.99$^{c, d}$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001, $^b$ p<0.01, $^c$ p<0.05 when compared with control

$^d$ p<0.001, $^e$ p<0.05 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 53
Real Time PCR amplification of GABA\textsubscript{A\alpha1} receptor subunit mRNA from the cerebellum of control and experimental neonatal rats

Table- 57
Real Time PCR amplification of GABA\textsubscript{A\alpha1} receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-3.13 ± 0.10(^a)</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.71 ± 0.08(^{b,c})</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.35 ± 0.08(^{b,c})</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-1.43 ± 0.03(^{b,d})</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-3.34 ± 0.18(^a)</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-2.11 ± 0.13(^{a,d})</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
\(^a\) p<0.001, \(^b\) p<0.05 when compared to Control. \(^c\) p<0.001, \(^d\) p<0.01 when compared to Hx.
Figure- 54
Real Time PCR amplification of GABA\(\alpha_5\) receptor subunit mRNA from the cerebellum of control and experimental neonatal rats

Table- 58
Real Time PCR amplification of GABA\(\alpha_5\) receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-2.43 ± 0.10(^a)</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.35 ± 0.08(^b)</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.24 ± 0.08(^b)</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.97 ± 0.05(^b, c)</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-2.97 ± 0.07(^a)</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-1.99 ± 0.13(^a, d)</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\(^a\) p<0.001, \(^c\) p<0.05 when compared to Control \\
\(^b\) p<0.001, \(^d\) p<0.01 when compared to hypoxic group.

Figure- 55
Real Time PCR amplification of GABA_{Aγ3} receptor subunit mRNA from the cerebellum of control and experimental neonatal rats

Table- 59
Real Time PCR amplification of GABA_{Aγ3} receptor subunit mRNA from the cerebral cortex of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-1.44 ± 0.10(^a)</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.14 ± 0.03(^b)</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.11 ± 0.02(^b)</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.64 ± 0.04(^b)</td>
</tr>
<tr>
<td>Hx+ E</td>
<td>-1.66 ± 0.07(^a)</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-1.23 ± 0.09(^a)</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\(^a\) p<0.001 when compared to Control

\(^b\) p<0.001 when compared to hypoxic group

Real Time PCR amplification of GABA_Aδ receptor subunit mRNA from the cerebellum of control and experimental neonatal rats

![Figure 56](image)

Table 60

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.97 ± 0.03&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.04 ± 0.01&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.01 ± 0.01&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.22 ± 0.02&lt;sup&gt;b, c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.98 ± 0.03&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.76 ± 0.05&lt;sup&gt;a, d&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001, <sup>c</sup> p<0.05 when compared to Control
<sup>b</sup> p<0.001, <sup>d</sup> p<0.01 when compared to hypoxic group

Real Time PCR amplification of GABA subunit mRNA from the cerebellum of control and experimental neonatal rats

![Bar graph showing Log RQ for different experimental groups](image)

### Table 61

Real Time PCR amplification of GABA subunit mRNA from the cerebellum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.46 ± 0.05 a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.21 ± 0.10 b</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.27 ± 0.08 b</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.36 ± 0.05 a, c</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.75 ± 0.10 a</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.57 ± 0.02 a</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

- a p<0.001 when compared to Control
- b p<0.001, c p<0.05 when compared to hypoxic group

Figure- 58
Real Time PCR amplification of GAD mRNA from the cerebellum of control and experimental neonatal rats

Table- 62
Real Time PCR amplification of GAD mRNA from the cerebellum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.55 ± 0.03  a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.07 ± 0.01  b, d</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.04 ± 0.01  b, d</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.23 ± 0.02  c, d</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.51 ± 0.02  c, e</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.51 ± 0.02  b, d</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001, c p<0.01 when compared to Control
b p<0.001, d p<0.01 when compared to hypoxic group

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O,
Hypoxic rats glucose and oxygen treated - Hx+G+O, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure-59
GABA<sub>α1</sub> receptor expression in the cerebellum of control and experimental neonatal rats

Control  Hx  Hx + G  Hx + G + O

Hx + O  Hx + E  Hx + G + E + O

Table- 63
GABA\textsubscript{A} receptor expression in the cerebellum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Mean Pixel intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>55.45 ± 6.25</td>
</tr>
<tr>
<td>Hx</td>
<td>25.60 ± 4.35</td>
</tr>
<tr>
<td>Hx + G</td>
<td>50.25 ± 5.45</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>52.18 ± 6.01</td>
</tr>
<tr>
<td>Hx + O</td>
<td>38.55 ± 5.05</td>
</tr>
<tr>
<td>Hx + E</td>
<td>32.15 ± 3.82</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>37.24 ± 2.98</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\textsuperscript{a} p<0.001 when compared to Control
\textsuperscript{b} p<0.001 when compared to hypoxic group

Figure- 60

Table- 64

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>616.62 ± 4.1</td>
<td>37.55 ± 1.14</td>
</tr>
<tr>
<td>Hx</td>
<td>696.61 ± 5.5</td>
<td>26.01 ± 1.04$^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>593.41 ± 3.8$^b$</td>
<td>40.53 ± 1.10$^{a,b}$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>636.50 ± 4.2$^b$</td>
<td>31.42 ± 1.15$^{a,b}$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>653.42 ± 4.3$^{a,b}$</td>
<td>28.47 ± 1.24$^b$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001 when compared with control

$^b$ p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Figure- 61
Scatchard analysis of $[^3\text{H}]$ 5-HT binding against 5-HT to total 5-HT receptor in the cerebellum of control and experimental neonatal rats.

Table- 65
Scatchard analysis of $[^3\text{H}]$ 5-HT binding against 5-HT to total 5-HT receptor in the cerebellum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmol/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>616.62 ± 4.1</td>
<td>37.55 ± 1.14</td>
</tr>
<tr>
<td>Hx</td>
<td>696.61 ± 5.5&lt;sup&gt;a&lt;/sup&gt;</td>
<td>26.01 ± 1.04&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>743.36 ± 6.5&lt;sup&gt;a,b&lt;/sup&gt;</td>
<td>37.17 ± 1.10&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>708.32 ± 5.8&lt;sup&gt;a,b&lt;/sup&gt;</td>
<td>33.05 ± 1.12&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
<sup>a</sup>p<0.001 when compared with control
<sup>b</sup>p<0.001 when compared with hypoxic group
Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 62
Scatchard analysis of $[^3]$H] ketanserin binding against ketanserin to 5-HT$_{2A}$ receptor in the cerebellum of control and experimental neonatal rats.

Table- 66
Scatchard analysis of $[^3]$H] ketanserin binding against ketanserin to 5-HT$_{2A}$ receptor in the cerebellum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>$B_{\text{max}}$ (fmoles/mg protein)</th>
<th>$K_d$ (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>220.04±1.50</td>
<td>0.86±0.01</td>
</tr>
<tr>
<td>Hx</td>
<td>264.90±1.67 $^a$</td>
<td>0.56±0.05 $^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>196.45±1.25 $^b$</td>
<td>0.55±0.05 $^a$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>220.84±1.74 $^b$</td>
<td>0.64±0.04 $^a$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>153.04±1.55 $^a$</td>
<td>0.94±0.03 $^b$</td>
</tr>
</tbody>
</table>

Values are mean ± S.E.M of 4-6 separate experiments. Each group consists of 6-8 rats.

$^a$ p<0.001 when compared with control.

$^b$p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Figure- 63
Scatchard analysis of $[^3H]$ ketanserin binding against ketanserin to 5-HT$_{2A}$ receptor in the cerebellum of control and experimental neonatal rats.

Table- 67
Scatchard analysis of $[^3H]$ ketanserin binding against ketanserin to 5-HT$_{2A}$ receptor in the cerebellum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>$B_{max}$ (fmoles/mg protein)</th>
<th>$K_d$ (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>220.04±1.50</td>
<td>0.86±0.01</td>
</tr>
<tr>
<td>Hx</td>
<td>264.90±1.67 $^a$</td>
<td>0.56±0.05 $^a$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>328.30±1.55 $^a$</td>
<td>0.80±0.05 $^b$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>313.20±1.60 $^a$</td>
<td>0.63±0.06 $^c$</td>
</tr>
</tbody>
</table>

Values are mean ± S.E.M of 4-6 separate experiments. Each group consists of 6-8 rats.

$p<0.001$ when compared with control.

$p<0.001$, $^a$p<0.05 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 64
Real Time PCR amplification of 5-HT$_{2A}$ receptor subunit mRNA from the cerebellum of control and experimental neonatal rats

Table- 68
Real Time PCR amplification of 5-HT$_{2A}$ receptor subunit mRNA from the cerebellum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>3.78 ± 0.09 $^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>1.02 ± 0.10 $^{b,c}$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.61 ± 0.02 $^{b,c}$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-2.68 ± 0.12 $^{a,c}$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>4.57 ± 0.24 $^a$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>2.13 ± 0.10 $^a$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001, $^b$p<0.05 when compared to Control

Figure- 65
Real Time PCR amplification of 5-HT transporter mRNA from the cerebellum of control and experimental neonatal rats

![Graph showing Log RQ values for different experimental groups.]

Table- 69
Real Time PCR amplification of 5-HT transporter mRNA from the cerebellum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>$3.23 \pm 0.09$ $^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>$0.99 \pm 0.10$ $^b$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>$-0.26 \pm 0.02$ $^b$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>$-1.97 \pm 0.12$ $^{a,c}$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>$5.23 \pm 0.24$ $^a$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>$2.12 \pm 0.10$ $^b$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001 when compared to Control
$^b$ p<0.001 ‘p<0.01 when compared to hypoxic group

Figure- 66
5-HT$_{2A}$ receptor expression in the cerebellum of control and experimental neonatal rats

Table- 70

5-HT\textsubscript{2A} receptor expression in the cerebellum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Mean Pixel intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>46.78 ± 5.50</td>
</tr>
<tr>
<td>Hx</td>
<td>68.24 ± 8.25\textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G</td>
<td>40.35 ± 4.55\textsuperscript{b}</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>44.25 ± 5.05\textsuperscript{b}</td>
</tr>
<tr>
<td>Hx + O</td>
<td>58.25 ± 6.20</td>
</tr>
<tr>
<td>Hx + E</td>
<td>65.43 ± 8.50\textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>62.01 ± 9.01\textsuperscript{a}</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\textsuperscript{a} p<0.001 when compared to Control
\textsuperscript{b} p<0.001 when compared to hypoxic group

Figure- 67
5-HT transporter expression in the cerebellum of control and experimental neonatal rats

Table- 71
5-HT transporter expression in the cerebellum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Mean Pixel intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>20.05 ± 2.55</td>
</tr>
<tr>
<td>Hx</td>
<td>42.13 ± 3.05</td>
</tr>
<tr>
<td>Hx + G</td>
<td>22.50 ± 2.00</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>20.55 ± 3.12</td>
</tr>
<tr>
<td>Hx + O</td>
<td>49.04 ± 3.25</td>
</tr>
<tr>
<td>Hx + E</td>
<td>50.20 ± 3.80</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>43.11 ± 3.50</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared to Control
b p<0.001 when compared to hypoxic group

Scatchard analysis of $[^3]$H QNB binding against atropine to total muscarinic receptor in the cerebellum of control and experimental neonatal rats.

![Figure- 68](image)

**Table- 72**
Scatchard analysis of $[^3]$H QNB binding against atropine to total muscarinic receptor in the cerebellum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>237.54 ± 5.5</td>
<td>8.67 ± 1.20</td>
</tr>
<tr>
<td>Hx</td>
<td>130.20 ± 2.5&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.89 ± 1.01&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>169.38 ± 3.0&lt;sup&gt;b&lt;/sup&gt;</td>
<td>4.46 ± 1.20&lt;sup&gt;a,b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>206.28 ± 4.0&lt;sup&gt;b&lt;/sup&gt;</td>
<td>6.54 ± 2.0&lt;sup&gt;a,b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>133.14 ± 2.0&lt;sup&gt;a,b&lt;/sup&gt;</td>
<td>5.02 ± 1.10&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup>p<0.001 when compared with control
<sup>b</sup>p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Figure 69
Scatchard analysis of $[^3]H$ QNB binding against atropine to total muscarinic receptor in the cerebellum of control and experimental neonatal rats.

![Scatchard analysis graph](image)

Table 73
Scatchard analysis of $[^3]H$ QNB binding against atropine to total muscarinic receptor in the cerebellum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>237.54 ± 5.5</td>
<td>8.67 ± 1.20</td>
</tr>
<tr>
<td>Hx</td>
<td>130.20 ± 2.5$^a$</td>
<td>5.89 ± 1.01$^a$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>108.12 ± 2.6$^a,b$</td>
<td>5.09 ± 1.10$^b$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>100.62 ± 3.5$^a,b$</td>
<td>3.19 ± 1.12$^b$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001 when compared with control

$^b$ p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 70
Real Time PCR amplification of Muscarinic M₁ receptor mRNA from the cerebellum of control and experimental neonatal rats

![Graph showing Log RQ values for different experimental groups compared to control.]

Table- 74
Real Time PCR amplification of Muscarinic M₁ receptor mRNA from the cerebellum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-1.07 ± 0.10  a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.24 ± 0.04  b</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.19 ± 0.03  b</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.77 ± 0.10  a,c</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-1.98 ± 0.10  a</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-1.57 ± 0.08  a</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared to Control
b p<0.001, ‘p<0.05 when compared to hypoxic group.
Real Time PCR amplification of Muscarinic M$_2$ receptor mRNA from the cerebellum of control and experimental neonatal rats

![Figure- 71](image)

Table- 75
Real Time PCR amplification of Muscarinic M$_2$ receptor mRNA from the cerebellum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-1.99 ± 0.07$^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.35 ± 0.05$^b$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.21 ± 0.01$^b$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.53 ± 0.02$^c$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-2.32 ± 0.15$^a$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-2.02 ± 0.13$^a$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001 when compared to Control

$^b$ p<0.001 when compared to hypoxic group.

Real Time PCR amplification of Muscarinic M₃ receptor mRNA from the cerebellum of control and experimental neonatal rats

![Graph showing real-time PCR amplification](image)

Table- 76
Real Time PCR amplification of Muscarinic M₂ receptor mRNA from the cerebellum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-1.81 ± 0.07 a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.44 ± 0.04 b</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.32 ± 0.02 b</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.77 ± 0.05 c</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-1.99 ± 0.15 a</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-1.86 ± 0.11 a</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared to Control

b p<0.001, c p<0.01 when compared to hypoxic group.

Figure- 73
Real Time PCR amplification of acetylcholine esterase mRNA from the cerebellum of control and experimental neonatal rats.

Table- 77
Real Time PCR amplification of acetylcholine esterase mRNA from the cerebellum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>1.09 ± 0.05 a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.28 ± 0.02 b</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.12 ± 0.01 b</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.67 ± 0.03 a,c</td>
</tr>
<tr>
<td>Hx + E</td>
<td>1.33 ± 0.05 a</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>0.98 ± 0.06 a</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared to Control
b p<0.001, c p<0.05 when compared to hypoxic group.

Figure- 74
Real Time PCR amplification of choline acetyl transferase mRNA from the cerebellum of control and experimental neonatal rats.

Table- 78
Real Time PCR amplification of acetylcholine esterase mRNA from the cerebellum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.68 ± 0.05</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.11 ± 0.02</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.10 ± 0.01</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.35 ± 0.03</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.76 ± 0.05</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.66 ± 0.06</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared to Control
b p<0.001, c p<0.05 when compared to hypoxic group.

Figure- 75
Real Time PCR amplification of Hif 1 mRNA from the cerebellum of control and experimental neonatal rats.

Table- 79
Real Time PCR amplification of Hif 1 mRNA from the cerebellum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>0.57 ± 0.01\textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.12 ± 0.01\textsuperscript{b,c}</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.09 ± 0.01\textsuperscript{b,c}</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.13 ± 0.02\textsuperscript{b,c}</td>
</tr>
<tr>
<td>Hx + E</td>
<td>0.23 ± 0.02\textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>0.41 ± 0.02\textsuperscript{a,d}</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
\textsuperscript{a} p<0.001, \textsuperscript{b} p<0.05 when compared to Control
\textsuperscript{c} p<0.001, \textsuperscript{d} p<0.05 when compared to hypoxic group
Figure- 76
Real Time PCR amplification of SOD mRNA from the cerebellum of control and experimental neonatal rats.

![Bar graph showing Log RQ values for different experimental groups.

Table- 80
Real Time PCR amplification of SOD mRNA from the cerebellum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-1.98 ± 0.07&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.66 ± 0.05&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.32 ± 0.08&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.77 ± 0.08&lt;sup&gt;b,c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-1.32 ± 0.11&lt;sup&gt;a,c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-1.25 ± 0.13&lt;sup&gt;a,c&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
<sup>a</sup>p<0.001, <sup>b</sup>p<0.01 when compared to Control
<sup>c</sup>p<0.001 when compared to hypoxic group

Real Time PCR amplification of GPx mRNA from the cerebellum of control and experimental neonatal rats.

Table- 81
Real Time PCR amplification of GPx mRNA from the cerebellum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
</tbody>
</table>
| Hx                           | -2.79 ± 0.10  
| Hx + G                       | -0.67 ± 0.05  
| Hx + G + O                   | -0.46 ± 0.07  
| Hx + O                       | 2.06 ± 0.09  
| Hx + E                       | -3.01 ± 0.15  
| Hx + G + E + O               | -2.97 ± 0.11  

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001,  b p<0.01 when compared to Control
b p<0.001 when compared to hypoxic group
Figure- 78
Real Time PCR amplification of BAX mRNA from the cerebellum of control and experimental neonatal rats

Table- 82
Real Time PCR amplification of BAX mRNA from the cerebellum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>1.09 ± 0.06</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.23 ± 0.08</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.12 ± 0.03</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.75 ± 0.04</td>
</tr>
<tr>
<td>Hx + E</td>
<td>0.79 ± 0.07</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>0.65 ± 0.08</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared to Control
b p<0.001 when compared to hypoxic group
Real Time PCR amplification of CREB mRNA from the cerebellum of control and experimental neonatal rats

Table- 83
Real Time PCR amplification of CREB mRNA from the cerebellum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
</tbody>
</table>
| Hx                  | -1.36 ± 0.06  
| Hx + G              | 0.42 ± 0.08   |
| Hx + G + O          | 0.53 ± 0.03   |
| Hx + O              | -0.88 ± 0.04  |
| Hx + E              | -1.15 ± 0.07  |
| Hx + G + E + O      | -1.03 ± 0.08  |

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared to Control
b p<0.001 when compared to hypoxic group

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O,
Hypoxic rats glucose and oxygen treated - Hx+G+O, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 80
Real Time PCR amplification of phospholipase C mRNA from the cerebellum of control and experimental neonatal rats.

Table- 84
Real Time PCR amplification of phospholipase C mRNA from the cerebellum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>1.05 ± 0.18 \textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.57 ± 0.10 \textsuperscript{b}</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.34 ± 0.10 \textsuperscript{b}</td>
</tr>
<tr>
<td>Hx + O</td>
<td>1.04 ± 0.13 \textsuperscript{b}</td>
</tr>
<tr>
<td>Hx + E</td>
<td>1.79 ± 0.15 \textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>1.36 ± 0.20 \textsuperscript{a}</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
\textsuperscript{a} p<0.001 when compared to Control
\textsuperscript{b} p<0.001 when compared to hypoxic group

Scatchard analysis of [3H] GABA binding against GABA to total GABA receptor in the brain stem of control and experimental neonatal rats.

### Table 85

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>153.36 ± 3.7</td>
<td>4.77 ± 0.44</td>
</tr>
<tr>
<td>Hx</td>
<td>116.68 ± 2.8(^a)</td>
<td>3.77 ± 0.22(^a)</td>
</tr>
<tr>
<td>Hx + G</td>
<td>173.36 ± 2.5(^b)</td>
<td>6.78 ± 0.35(^a, b)</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>160.84 ± 3.4(^b)</td>
<td>5.01 ± 0.26(^a, b)</td>
</tr>
<tr>
<td>Hx + O</td>
<td>136.68 ± 2.3(^a, b)</td>
<td>4.73 ± 0.29(^b)</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consists 6-8 neonatal rats.

\(^a\) p<0.001 when compared with control

\(^b\) p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Figure- 82
Scatchard analysis of $[^3]$H GABA binding against GABA to total GABA receptor in the brain stem of control and experimental neonatal rats.

Table- 86
Scatchard analysis of $[^3]$H GABA binding against GABA to total GABA receptor in the brain stem of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>$K_d$ (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>153.36 ± 3.7</td>
<td>4.77 ± 0.44</td>
</tr>
<tr>
<td>Hx</td>
<td>116.68 ± 2.8$^a$</td>
<td>3.77 ± 0.22$^a$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>122.08 ± 2.6$^a$</td>
<td>3.30 ± 0.14$^a$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>125.84 ± 4.5$^a$</td>
<td>4.10 ± 0.22$^b$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001 when compared with control

$^b$ p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure - 83

Table - 87


<table>
<thead>
<tr>
<th>Group</th>
<th>Best-fit model</th>
<th>Log (EC$_{50}$)-1</th>
<th>Log (EC$_{50}$)-2</th>
<th>$K_i (H)$</th>
<th>$K_i (L)$</th>
<th>Hill slope</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Two- site</td>
<td>-9.147</td>
<td>-4.550</td>
<td>3.3090 x 10$^9$</td>
<td>1.3080 x 10$^3$</td>
<td>- 0.8832</td>
</tr>
<tr>
<td>Hx</td>
<td>Two- site</td>
<td>-10.243</td>
<td>-5.398</td>
<td>2.6540 x 10$^{10}$</td>
<td>1.8560 x 10$^6$</td>
<td>- 0.7944</td>
</tr>
<tr>
<td>Hx + O</td>
<td>Two- site</td>
<td>-9.927</td>
<td>-4.906</td>
<td>4.4880 x 10$^9$</td>
<td>3.6380 x 10$^5$</td>
<td>- 0.6926</td>
</tr>
<tr>
<td>Hx + G</td>
<td>Two- site</td>
<td>-9.06</td>
<td>-4.780</td>
<td>4.0210 x 10$^{12}$</td>
<td>6.1230 x 10$^5$</td>
<td>- 0.6522</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>Two- site</td>
<td>-9.05</td>
<td>-4.667</td>
<td>4.1740 x 10$^{11}$</td>
<td>9.9930 x 10$^5$</td>
<td>- 0.7831</td>
</tr>
<tr>
<td>Hx + E</td>
<td>Two- site</td>
<td>-11.432</td>
<td>-5.708</td>
<td>1.7180 x 10$^{10}$</td>
<td>9.0940 x 10$^6$</td>
<td>- 0.6957</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>Two- site</td>
<td>-11.564</td>
<td>-5.654</td>
<td>1.7286 x 10$^{10}$</td>
<td>9.0223 x 10$^6$</td>
<td>- 0.6964</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

Figure- 84
Scatchard analysis of $[^3]$H bicuculline binding against bicuculline to GABA$_A$ receptor in the brain stem of control and experimental neonatal rats.

Table- 88
Scatchard analysis of $[^3]$H bicuculline binding against bicuculline to GABA$_A$ receptor in the brain stem of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>40.94 ± 2.6</td>
<td>13.47 ± 1.2</td>
</tr>
<tr>
<td>Hx</td>
<td>25.73 ± 1.5$^a$</td>
<td>8.07 ± 1.02$^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>41.77 ± 2.6$^b$</td>
<td>30.27 ± 2.12$^{a,b}$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>38.13 ± 3.0$^b$</td>
<td>27.24 ± 2.00$^{a,b}$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>34.27 ± 2.0$^{a,b}$</td>
<td>15.94 ± 1.34$^b$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001 when compared with control

$^b$ p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Scatchard analysis of $[^3]$H bicuculline binding against bicuculline to GABA$_A$ receptor in the brain stem of control and experimental neonatal rats.

### Figure- 85

Scatchard analysis of $[^3]$H bicuculline binding against bicuculline to GABA$_A$ receptor in the brain stem of control and experimental neonatal rats.

### Table- 89

Scatchard analysis of $[^3]$H bicuculline binding against bicuculline to GABA$_A$ receptor in the brain stem of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>$40.94 \pm 2.6$</td>
<td>$13.47 \pm 1.20$</td>
</tr>
<tr>
<td>Hx</td>
<td>$25.73 \pm 1.5^{a}$</td>
<td>$8.07 \pm 1.02^{a}$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>$46.67 \pm 2.6^{a,b}$</td>
<td>$16.85 \pm 1.85^{b}$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>$38.23 \pm 4.5^{a,b}$</td>
<td>$9.85 \pm 1.20^{b}$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^{a} p<0.001$ when compared with control

$^{b} p<0.001$ when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 86
Scatchard analysis of $[^3]$H baclofen binding against baclofen to GABA$_B$ receptor in the brain stem of control and experimental neonatal rats.

Table- 90
Scatchard analysis of $[^3]$H baclofen binding against baclofen to GABA$_B$ receptor in the brain stem of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmol/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>74.27 ±1.20</td>
<td>13.31 ±1.00</td>
</tr>
<tr>
<td>Hx</td>
<td>51.84 ± 1.50$^a$</td>
<td>14.44 ±0.99$^b$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>69.41 ±1.40$^b$</td>
<td>20.47 ±0.99$^a$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>70.47 ±1.10$^c$</td>
<td>26.10 ±1.20$^a$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>49.10 ±1.10$^a$</td>
<td>16.36 ±1.50$^a$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001,  $^b$ p<0.05 when compared with control
$^c$ p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O,
Hypoxic rats glucose and oxygen treated - Hx+G+O
Figure- 87

Scatchard analysis of $[^3]$H baclofen binding against baclofen to GABA$_B$ receptor in the brain stem of control and experimental neonatal rats.

Table- 91

Scatchard analysis of $[^3]$H baclofen binding against baclofen to GABA$_B$ receptor in the brain stem of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>74.27 ±1.2</td>
<td>13.31 ±1.0</td>
</tr>
<tr>
<td>Hx</td>
<td>51.84 ± 1.5 $^a$</td>
<td>14.44 ± 0.99 $^b$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>43.59 ±1.5 $^a$</td>
<td>14.53 ± 0.99 $^b$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>53.95 ±1.5 $^a$</td>
<td>13.90 ± 0.99 $^b$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001, $^b$ p<0.01, $^c$ p<0.05 when compared with control

$^d$ p<0.001, $^e$ p<0.05 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 88
Real Time PCR amplification of GABA_\text{A}_\text{61} receptor subunit mRNA from the brain stem of control and experimental neonatal rats

Table- 92
Real Time PCR amplification of GABA_\text{A}_\text{61} receptor subunit mRNA from the brain stem of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.23 ± 0.02\textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.03 ± 0.01\textsuperscript{b}</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.01 ± 0.005\textsuperscript{b}</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.04 ± 0.01\textsuperscript{b}</td>
</tr>
<tr>
<td>Hx + E</td>
<td>0.08 ± 0.01\textsuperscript{c,d}</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.11 ± 0.01\textsuperscript{c,d}</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
\textsuperscript{a} p<0.001, \textsuperscript{b} p<0.05 when compared to Control
\textsuperscript{c} p<0.01 when compared to hypoxic group
Figure- 89
Real Time PCR amplification of GABA$_{A_5}$ receptor subunit mRNA from the brain stem of control and experimental neonatal rats

![Graph showing the log RQ values for different experimental groups]

Table- 93
Real Time PCR amplification of GABA$_{A_5}$ receptor subunit mRNA from the brain stem of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.15 ± 0.03$^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.05 ± 0.01$^b$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.009 ± 0.002$^b$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.23 ± 0.03$^a$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>0.32 ± 0.01$^c$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.33 ± 0.01$^c$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.01, $^b$ p<0.001 when compared to Control

Figure- 90
Real Time PCR amplification of GABA<sub>λγ3</sub> receptor subunit mRNA from the brain stem of control and experimental neonatal rats

Table- 94
Real Time PCR amplification of GABA<sub>λγ3</sub> receptor subunit mRNA from the brain stem of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.44 ± 0.02&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.32 ± 0.01&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.23 ± 0.03&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.42 ± 0.01&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>0.63 ± 0.05&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>0.55 ± 0.05&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup>p<0.01, <sup>c</sup>p<0.001 when compared to Control

<sup>b</sup>p<0.001 when compared to hypoxic group

**Figure- 91**
Real Time PCR amplification of GABA$_{A_6}$ receptor subunit mRNA from the brain stem of control and experimental neonatal rats.

**Table- 95**
Real Time PCR amplification of GABA$_{A_6}$ receptor subunit mRNA from the brain stem of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.23 ± 0.03  $^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.08 ± 0.01   $^b$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.03 ± 0.01  $^b$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.54 ± 0.03  $^c$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>0.54 ± 0.01   $^c$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.76 ± 0.01  $^c$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.05, $^c$ p<0.001 when compared to Control

$^b$ p<0.001 when compared to hypoxic group

Real Time PCR amplification of GABA$_B$ receptor subunit mRNA from the brain stem of control and experimental neonatal rats

![Bar graph showing Log RQ values for different conditions.]

Table- 96

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.46 ± 0.03</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.14 ± 0.02</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.10 ± 0.02</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.36 ± 0.02</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.75 ± 0.04</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.57 ± 0.02</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001, $^b$ p<0.01 when compared to Control

Real Time PCR amplification of GAD mRNA from the brain stem of control and experimental neonatal rats

Table- 97
Real Time PCR amplification of GAD mRNA from the brain stem of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.69 ± 0.05&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.10 ± 0.03&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.07 ± 0.01&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.25 ± 0.02&lt;sup&gt;b, c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.61 ± 0.02&lt;sup&gt;a, d&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.46 ± 0.02&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
<sup>a</sup> p<0.001,  <sup>c</sup> p<0.01 when compared to Control
<sup>b</sup> p<0.001,  <sup>d</sup> p<0.05 when compared to hypoxic group

Figure-94
GABA$_{\text{A}\alpha 1}$ receptor expression in the brain stem of control and experimental neonatal rats

Table- 98
GABA<sub>αα</sub> receptor expression in the brain stem of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Mean Pixel intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>78.32 ± 4.32</td>
</tr>
<tr>
<td>Hx</td>
<td>41.50 ± 5.20&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>74.65 ± 5.05&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>76.45 ± 4.55&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>53.22 ± 5.75&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>43.55 ± 4.55&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>46.46 ± 5.32&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
<sup>a</sup> p<0.001 when compared to Control
<sup>b</sup> p<0.001 when compared to hypoxic group
Figure 95
Scatchard analysis of \([^3\text{H}]\) 5-HT binding against 5-HT to total 5-HT receptor in the brain stem of control and experimental neonatal rats.

Table 99
Scatchard analysis of \([^3\text{H}]\) 5-HT binding against 5-HT to total 5-HT receptor in the brain stem of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>598.86 ± 5.0</td>
<td>26.08 ± 2.50</td>
</tr>
<tr>
<td>Hx</td>
<td>766.10 ± 6.5</td>
<td>18.92 ± 1.40</td>
</tr>
<tr>
<td>Hx + G</td>
<td>655.96 ± 4.2</td>
<td>28.77 ± 2.55</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>584.03 ± 5.5</td>
<td>20.49 ± 2.05</td>
</tr>
<tr>
<td>Hx + O</td>
<td>689.90 ± 4.0</td>
<td>21.29 ± 2.00</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\(a\ p<0.001\) when compared with control

\(b\ p<0.001, \ c\ p<0.01\) when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Figure- 96
Scatchard analysis of [³H] 5-HT binding against 5-HT to total 5-HT receptor in the brain stem of control and experimental neonatal rats.

Table- 100
Scatchard analysis of [³H] 5-HT binding against 5-HT to total 5-HT receptor in the brain stem of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>598.86 ± 5.0</td>
<td>26.08 ± 2.50</td>
</tr>
<tr>
<td>Hx</td>
<td>766.10 ± 6.5 a</td>
<td>18.92 ± 1.40 a</td>
</tr>
<tr>
<td>Hx + E</td>
<td>755.54 ± 5.5 a</td>
<td>16.30 ± 1.10 a</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>677.10 ± 5.0 a,c</td>
<td>17.19 ± 1.50 a</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared with control
b p<0.001, c p<0.05 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+ G+ E+ O
Figure- 97
Scatchard analysis of $[^3]H$ ketanserin binding against ketanserin to 5-HT$_{2A}$ receptor in the brain stem of control and experimental neonatal rats.

Table- 101
Scatchard analysis of $[^3]H$ ketanserin binding against ketanserin to 5-HT$_{2A}$ receptor in the brain stem and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>197.19 ± 4.1</td>
<td>5.40 ± 1.14</td>
</tr>
<tr>
<td>Hx</td>
<td>363.95 ± 5.5$^a$</td>
<td>7.69 ± 1.04$^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>236.13 ± 3.8$^b$</td>
<td>5.73 ± 1.10$^b$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>203.13 ± 4.2$^b$</td>
<td>9.02 ± 1.15$^a$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>262.35 ± 4.3$^{a,b}$</td>
<td>5.35 ± 1.24$^b$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats. 

$^a$ p<0.001 when compared with control 

$^b$ p<0.001 when compared with hypoxic group. 

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Scatchard analysis of $[^3]H$ ketanserin binding against ketanserin to 5-HT$_{2A}$ receptor in the brain stem of control and experimental neonatal rats.

**Figure 98**

**Table 102**
Scatchard analysis of $[^3]H$ ketanserin binding against ketanserin to 5-HT$_{2A}$ receptor in the brain stem and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>197.19 ± 4.1</td>
<td>5.40 ± 1.14</td>
</tr>
<tr>
<td>Hx</td>
<td>363.95 ± 5.5$^a$</td>
<td>7.69 ± 1.04$^a$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>358.10 ± 6.5$^a$</td>
<td>4.48 ± 1.10$^b$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>323.81 ± 5.8$^a$</td>
<td>4.33 ± 1.12$^b$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ $p<0.001$ when compared with control

$^b$ $p<0.001$ when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Real Time PCR amplification of 5-HT$_{2A}$ receptor subunit mRNA from the brain stem of control and experimental neonatal rats

Table

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>4.03 ± 0.09    $^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.99 ± 0.06    $^b$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.25 ± 0.03    $^b$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-1.32 ± 0.10   $^{c,d}$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>4.34 ± 0.17    $^a$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>4.00 ± 0.14    $^a$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001, $^b$ p<0.05 when compared to Control

Real Time PCR amplification of 5-HT transporter mRNA from the brain stem of control and experimental neonatal rats

![Bar chart showing Log RQ values for different experimental groups.]

Table: Real Time PCR amplification of 5-HT transporter mRNA from the brain stem of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>4.53 ± 0.05&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>1.23 ± 0.07&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.68 ± 0.05&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-1.32 ± 0.10&lt;sup&gt;b,c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>4.88 ± 0.15&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>3.12 ± 0.13&lt;sup&gt;a,d&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup>p<0.001, <sup>b</sup>p<0.05 when compared to Control
<sup>ab</sup>p<0.001, <sup>d</sup>p<0.01 when compared to hypoxic group

Figure - 101
5-HT$_{2A}$ receptor expression in the brain stem of control and experimental neonatal rats

Control

Hx

Hx + G

Hx + O

Hx + E

Hx + G + E + O

Table 105
5-HT<sub>2A</sub> receptor expression in the brain stem of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Mean Pixel intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>19.78 ± 2.15</td>
</tr>
<tr>
<td>Hx</td>
<td>35.20 ± 3.50&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>17.55 ± 2.06&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>18.99 ± 1.56&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>29.89 ± 2.55&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>45.20 ± 3.25&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>32.12 ± 4.07&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001 when compared to Control

<sup>b</sup> p<0.001 when compared to hypoxic group

Figure - 102
5-HT transporter expression in the brain stem of control and experimental neonatal rats
Table-106
5-HT transporter expression in the brain stem of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Mean Pixel intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>12.66 ± 1.22</td>
</tr>
<tr>
<td>Hx</td>
<td>34.25 ± 1.45</td>
</tr>
<tr>
<td>Hx + G</td>
<td>14.20 ± 2.05</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>15.25 ± 3.05</td>
</tr>
<tr>
<td>Hx + O</td>
<td>22.45 ± 2.50</td>
</tr>
<tr>
<td>Hx + E</td>
<td>32.12 ± 2.65</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>29.87 ± 2.00</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

*ap<0.001 when compared to Control

*bp<0.001 when compared to hypoxic group

**Figure-103**
Scatchard analysis of [$^3$H] QNB binding against atropine to total muscarinic receptor in the brain stem of control and experimental neonatal rats.

**Table- 107**
Scatchard analysis of [$^3$H] QNB binding against atropine to total muscarinic receptor in the brain stem of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>223.95 ± 3.6</td>
<td>7.80 ±0.14</td>
</tr>
<tr>
<td>Hx</td>
<td>127.10 ± 3.8$^a$</td>
<td>5.74 ±0.12$^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>178.15 ± 2.9$^c$</td>
<td>4.88 ±0.10$^a$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>202.60 ± 3.8$^b$</td>
<td>6.56 ±0.15$^b$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>134.40 ± 2.5$^a$</td>
<td>5.07 ±0.14$^a$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001 when compared with control

$^b$ p<0.001, $^c$ p<0.01 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O.
Figure- 104
Scatchard analysis of [³H] QNB binding against atropine to total muscarinic receptor in the brain stem of control and experimental neonatal rats.

Table- 108
Scatchard analysis of [³H] QNB binding against atropine to total muscarinic receptor in the brain stem of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmole/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>223.95 ± 3.6</td>
<td>7.80 ± 0.14</td>
</tr>
<tr>
<td>Hx</td>
<td>127.10 ± 3.8ᵃ</td>
<td>5.74 ± 0.12ᵃ</td>
</tr>
<tr>
<td>Hx + E</td>
<td>116.15 ±2.6ᵃ</td>
<td>3.62 ±0.10ᵃ</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>123.95 ±4.5ᵃ</td>
<td>3.70 ±0.12ᵃ</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

ᵃ p<0.001 when compared with control

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Real Time PCR amplification of Muscarinic M₁ receptor subunit mRNA from the brain stem of control and experimental neonatal rats

**Figure-105**

**Table-109**

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-3.89 ± 0.18&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.76 ± 0.10&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.46 ± 0.09&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-1.01 ± 0.10&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-4.12 ± 0.26&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-3.66 ± 0.24&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001 when compared to Control

<sup>b</sup> p<0.001 when compared to hypoxic group

Figure- 106
Real Time PCR amplification of Muscarinic M_2 receptor subunit mRNA from the brain stem of control and experimental neonatal rats

Table- 110
Real Time PCR amplification of Muscarinic M_2 receptor subunit mRNA from the brain stem of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-1.98 ± 0.09^a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.80 ± 0.03^b</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.48 ± 0.02^b</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.99 ± 0.04^c</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-2.39 ± 0.19^a</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-1.88 ± 0.14^a</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

^a p<0.001 when compared to Control
^b p<0.001, ^c p <0.01 when compared to hypoxic group

Real Time PCR amplification of Muscarinic M₃ receptor subunit mRNA from the brain stem of control and experimental neonatal rats

Table- 111
Real Time PCR amplification of Muscarinic M₃ receptor subunit mRNA from the brain stem of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-2.01 ± 0.09ᵃ</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.35 ± 0.03ᵇ</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.13 ± 0.02ᵇ</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.95 ± 0.04ᶜ</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-2.67 ± 0.19ᵃ</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-2.14 ± 0.14ᵃ</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
ᵃ p<0.001 when compared to Control
ᵇ p<0.001, ⁱ p <0.01 when compared to hypoxic group

Figure-108
Real Time PCR amplification of acetylcholine esterase mRNA from the brain stem of control and experimental neonatal rats.

Table- 112
Real Time PCR amplification of acetylcholine esterase mRNA from the brain stem of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>0.99 ± 0.09 (^a)</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.12 ± 0.03 (^b)</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.11 ± 0.02 (^b)</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.37 ± 0.04 (^c)</td>
</tr>
<tr>
<td>Hx + E</td>
<td>1.12 ± 0.19 (^a)</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>1.00 ± 0.14 (^a)</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\(^a\) p<0.001 when compared to Control

\(^b\) p<0.001, \(^c\) p<0.01 when compared to hypoxic group

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O,
Hypoxic rats glucose and oxygen treated - Hx+G+O, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Real Time PCR amplification of choline acetyl transferase mRNA from the brain stem of control and experimental neonatal rats.

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001 when compared to Control

$^b$ p<0.001, $^c$ p <0.01 when compared to hypoxic group

Real Time PCR amplification of Hif 1 mRNA from the brain stem of control and experimental neonatal rats.

Table 1

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>2.08 ± 0.10</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.65 ± 0.08</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.26 ± 0.04</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.77 ± 0.10</td>
</tr>
<tr>
<td>Hx + E</td>
<td>1.99 ± 0.08</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>1.77 ± 0.07</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\( ^{a} p<0.001, ^{c} p<0.05 \) when compared to Control

\( ^{b} p<0.001 \) when compared to hypoxic group

Real Time PCR amplification of SOD mRNA from the brain stem of control and experimental neonatal rats.

Table 115
Real Time PCR amplification of SOD mRNA from the brain stem of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-4.44 ± 0.23</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-1.32 ± 0.06</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-1.02 ± 0.09</td>
</tr>
<tr>
<td>Hx + O</td>
<td>2.57 ± 0.12</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-4.89 ± 0.08</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-4.13 ± 0.09</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a *p*<0.001, b *p*<0.05 when compared to Control
b *p*<0.001 when compared to hypoxic group

Real Time PCR amplification of GPx mRNA from the brain stem of control and experimental neonatal rats.

Table 116
Real Time PCR amplification of GPx mRNA from the brain stem of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-5.88 ± 0.23</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.99 ± 0.08</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.94 ± 0.08</td>
</tr>
<tr>
<td>Hx + O</td>
<td>1.06 ± 0.12</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-6.02 ± 0.20</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-5.76 ± 0.20</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared to Control
b p<0.001 when compared to hypoxic group

Figure- 113
Real Time PCR amplification of BAX mRNA from the brain stem of control and experimental neonatal rats

Table- 117
Real Time PCR amplification of BAX mRNA from the brain stem of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>0.46 ± 0.05 a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.23 ± 0.01 b</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.11 ± 0.03 b</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.33 ± 0.03 a</td>
</tr>
<tr>
<td>Hx + E</td>
<td>0.35 ± 0.04 a</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>0.30 ± 0.03 b</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared to Control
b p<0.001 when compared to hypoxic group

Real Time PCR amplification of CREB mRNA from the brain stem of control and experimental neonatal rats

**Figure- 114**

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.56 ± 0.05&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.29 ± 0.01&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.30 ± 0.03&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.10 ± 0.03&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.44 ± 0.04&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.35 ± 0.03&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001 when compared to Control

<sup>b</sup> p<0.001 when compared to hypoxic group

Figure- 115
Real Time PCR amplification of phospholipase C mRNA from the brain stem of control and experimental neonatal rats.

Table- 119
Real Time PCR amplification of phospholipase C mRNA from the brain stem of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>1.68 ± 0.14&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.25 ± 0.09&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.37 ± 0.09&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.98 ± 0.10&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>1.97 ± 0.19&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>1.68 ± 0.20&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
<sup>a</sup>p<0.001 when compared to Control
<sup>b</sup>p<0.001,  <sup>c</sup>p<0.01 when compared to hypoxic group
Figure- 116
Scatchard analysis of [3H] GABA binding against GABA to total GABA receptor in the corpus striatum of control and experimental neonatal rats.

Table- 120
Scatchard analysis of [3H] GABA binding against GABA to total GABA receptor in the corpus striatum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmole/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>304.08 ± 3.7</td>
<td>26.77 ± 0.44</td>
</tr>
<tr>
<td>Hx</td>
<td>164.78 ± 2.8 ( ^a )</td>
<td>11.35 ± 0.22 ( ^a )</td>
</tr>
<tr>
<td>Hx + G</td>
<td>281.47 ± 2.5 ( ^b )</td>
<td>28.72 ± 0.35 ( ^b )</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>297.50 ± 3.4 ( ^b )</td>
<td>24.15 ± 0.26 ( ^b )</td>
</tr>
<tr>
<td>Hx + O</td>
<td>165.55 ± 2.3 ( ^a )</td>
<td>9.74 ± 0.29 ( ^a )</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\( ^a \) p<0.001 when compared with control

\( ^b \) p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Figure- 117
Scatchard analysis of [3H] GABA binding against GABA to total GABA receptor in the corpus striatum of control and experimental neonatal rats.

Table- 121
Scatchard analysis of [3H] GABA binding against GABA to total GABA receptor in the corpus striatum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmole/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>304.08 ± 3.7</td>
<td>26.77 ± 0.44</td>
</tr>
<tr>
<td>Hx</td>
<td>164.78 ± 2.8&lt;sup&gt;a&lt;/sup&gt;</td>
<td>11.35 ± 0.22&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>121.80 ± 2.6&lt;sup&gt;a&lt;/sup&gt;</td>
<td>7.16 ± 0.14&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>141.47 ± 4.5&lt;sup&gt;a&lt;/sup&gt;</td>
<td>8.89 ± 0.22&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup>p<0.001 when compared with control
<sup>b</sup>p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure - 118

Binding parameters of [³H] GABA against GABA in the corpus striatum of control and experimental neonatal rats.
<table>
<thead>
<tr>
<th>Group</th>
<th>Best-fit model</th>
<th>Log (EC\textsubscript{50})\textsuperscript{1}</th>
<th>Log (EC\textsubscript{50})\textsuperscript{2}</th>
<th>(\text{Ki (H)})</th>
<th>(\text{Ki (L)})</th>
<th>Hill slope</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Two-site</td>
<td>-6.147</td>
<td>-3.550</td>
<td>2.3090x10\textsuperscript{-9}</td>
<td>1.3123x10\textsuperscript{-5}</td>
<td>-0.6832</td>
</tr>
<tr>
<td>Hx</td>
<td>Two-site</td>
<td>-7.243</td>
<td>-4.398</td>
<td>2.0543x10\textsuperscript{-10}</td>
<td>1.4350x10\textsuperscript{-6}</td>
<td>-0.6944</td>
</tr>
<tr>
<td>Hx + G</td>
<td>Two-site</td>
<td>-6.06</td>
<td>-3.880</td>
<td>3.9210x10\textsuperscript{-9}</td>
<td>4.1230x10\textsuperscript{-5}</td>
<td>-0.5522</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>Two-site</td>
<td>-6.05</td>
<td>-2.667</td>
<td>3.9740x10\textsuperscript{-9}</td>
<td>5.5530x10\textsuperscript{-5}</td>
<td>-0.6831</td>
</tr>
<tr>
<td>Hx + O</td>
<td>Two-site</td>
<td>-7.927</td>
<td>-4.106</td>
<td>4.4550x10\textsuperscript{-9}</td>
<td>3.3450x10\textsuperscript{-5}</td>
<td>-0.7926</td>
</tr>
<tr>
<td>Hx + E</td>
<td>Two-site</td>
<td>-9.432</td>
<td>-4.708</td>
<td>2.7180x10\textsuperscript{-10}</td>
<td>8.0340x10\textsuperscript{-6}</td>
<td>-0.7957</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>Two-site</td>
<td>-8.564</td>
<td>-4.623</td>
<td>2.4586x10\textsuperscript{-10}</td>
<td>8.0455x10\textsuperscript{-6}</td>
<td>-0.6964</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

Figure- 119
Scatchard analysis of [3H] bicuculline binding against bicuculline to GABA<sub>A</sub> receptor in the corpus striatum of control and experimental neonatal rats.

Table- 123
Scatchard analysis of [3H] bicuculline binding against GABA<sub>A</sub> receptor antagonist bicuculline in the corpus striatum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmole/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>36.58 ± 2.6</td>
<td>10.98 ± 1.20</td>
</tr>
<tr>
<td>Hx</td>
<td>27.42 ± 1.5&lt;sup&gt;a&lt;/sup&gt;</td>
<td>9.46 ± 1.02&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>31.75 ± 2.6&lt;sup&gt;b&lt;/sup&gt;</td>
<td>17.26 ± 2.12&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>31.76 ± 3.0&lt;sup&gt;b&lt;/sup&gt;</td>
<td>13.99 ± 2.00&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>25.67 ± 2.0&lt;sup&gt;a&lt;/sup&gt;</td>
<td>9.17 ± 1.34&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup>p<0.001 when compared with control

<sup>b</sup>p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Scatchard analysis of [$^3$H] bicuculline binding against bicuculline to GABA<sub>A</sub> receptor in the corpus striatum of control and experimental neonatal rats.

![Graph showing Scatchard analysis](image-url)

**Table- 124**

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>36.58 ± 2.6</td>
<td>10.98 ± 1.20</td>
</tr>
<tr>
<td>Hx</td>
<td>27.42 ± 1.5&lt;sup&gt;a&lt;/sup&gt;</td>
<td>9.46 ± 1.02&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>23.75 ± 2.6&lt;sup&gt;a&lt;/sup&gt;</td>
<td>7.66 ± 1.85&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>25.08 ± 4.5&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.97 ± 1.20&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup>p<0.001 when compared with control

<sup>b</sup>p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 121
Scatchard analysis of $[^3]$H baclofen binding against baclofen to GABA$_B$ receptor
in the corpus striatum of control and experimental neonatal rats.

Table- 125
Scatchard analysis of $[^3]$H baclofen binding against baclofen to GABA$_B$ receptor
in the corpus striatum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>19.12 ±1.20</td>
<td>5.18 ± 1.00</td>
</tr>
<tr>
<td>Hx</td>
<td>11.05 ± 1.50$^a$</td>
<td>3.96 ± 0.99$^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>22.35 ±1.40$^b$</td>
<td>7.21 ± 0.99$^b$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>18.18 ±1.10$^b$</td>
<td>4.43 ± 1.20$^d$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>11.93 ± 1.10$^a$</td>
<td>3.23 ± 1.50$^a$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001 when compared with control

$^b$ p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
Figure- 122
Scatchard analysis of [³H] baclofen binding against baclofen to GABA<sub>B</sub> receptor in the corpus striatum of control and experimental neonatal rats.

Table- 126
Scatchard analysis of [³H] baclofen binding against baclofen to GABA<sub>B</sub> receptor in the corpus striatum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>19.12 ±1.20</td>
<td>5.18 ± 1.00</td>
</tr>
<tr>
<td>Hx</td>
<td>11.05 ± 1.50&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.96 ± 0.99&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>10.00 ±1.50&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.50 ± 0.99&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>13.55 ±1.50&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.76 ± 0.99&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup>p<0.001 when compared with control
<sup>b</sup>p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Real Time PCR amplification of GABA_A1 receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats

Table- 127
Real Time PCR amplification of GABA_A1 receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-3.13 ± 0.10a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-1.44 ± 0.08b</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-1.13 ± 0.08b</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-3.76 ± 0.03a</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-4.77 ± 0.18a,c</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-3.87 ± 0.13a</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared to Control
b p<0.001, c p<0.05 when compared to hypoxic group
Real Time PCR amplification of GABA\(_{A\delta}\) receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats

![Graph showing Real Time PCR amplification of GABA\(_{A\delta}\) receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats.](image)

Table- 128
Real Time PCR amplification of GABA\(_{A\delta}\) receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-3.03 ± 0.10 (^a)</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.53 ± 0.08 (^b)</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.13 ± 0.08 (^b)</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-1.65 ± 0.03 (^c, d)</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-3.09 ± 0.18 (^a)</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-2.23 ± 0.13 (^c)</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\(^a\) p<0.001 when compared to Control
\(^b\) p<0.001, \(^c\) p<0.05 when compared to hypoxic group

Real Time PCR amplification of GABA_\text{A}_3 receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats

Table 129
Real Time PCR amplification of GABA_\text{A}_3 receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-1.44 ± 0.10</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.14 ± 0.03</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.11 ± 0.02</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.64 ± 0.05</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-1.66 ± 0.07</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-1.23 ± 0.10</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared to Control
b p<0.001, c p<0.01, d p<0.05 when compared to hypoxic group

Real Time PCR amplification of GABA<sub>Aδ</sub> receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats.

Table 130
Real Time PCR amplification of GABA<sub>Aδ</sub> receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.97 ± 0.03  &lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.04 ± 0.008 &lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.01 ± 0.007 &lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.22 ± 0.02  &lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.98 ± 0.03  &lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.76 ± 0.05  &lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001 when compared to Control
<sup>b</sup> p<0.001, <sup>c</sup> p<0.05 when compared to hypoxic group

Real Time PCR amplification of GABA<sub>B</sub> receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats

![Graph showing Log RQ levels for different experimental groups.]

Table- 131
Real Time PCR amplification of GABA<sub>B</sub> receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.32 ± 0.04&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.15 ± 0.01&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.12 ± 0.01&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.31 ± 0.03&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.48 ± 0.06&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.32 ± 0.07&lt;sup&gt;a,c&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001 when compared to Control
<sup>b</sup> p<0.001, <sup>c</sup> p<0.05 when compared to hypoxic group

Real Time PCR amplification of GAD mRNA from the corpus striatum of control and experimental neonatal rats.

![Figure](image_url)

Table 128
Real Time PCR amplification of GAD mRNA from the corpus striatum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.75 ± 0.04</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.11 ± 0.03</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.10 ± 0.01</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.44 ± 0.02</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.65 ± 0.02</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.60 ± 0.02</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

- a p<0.001 when compared to Control
- b p<0.001, c p<0.05 when compared to hypoxic group

Figure- 129

![Graph showing Scatchard analysis](image)

Table- 133

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>522.06 ± 5.0</td>
<td>36.51 ± 2.50</td>
</tr>
<tr>
<td>Hx</td>
<td>618.38 ± 6.5$^a$</td>
<td>25.59 ± 1.40$^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>433.16 ± 4.2$^b$</td>
<td>24.75 ± 2.55$^c$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>443.38 ± 5.5$^b$</td>
<td>18.71 ± 2.05$^a$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>560.00 ± 4.0$^c$</td>
<td>28.43 ± 2.00$^b$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consists 6-8 neonatal rats.

$^a$ p<0.001 when compared with control

$^b$ p<0.001, $^c$ p<0.05 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O.
Scatchard analysis of \(^{3}\text{H}\) 5-HT binding against 5-HT to total 5-HT receptor in the corpus striatum of control and experimental neonatal rats.

**Figure- 130**

*Scatchard analysis of \(^{3}\text{H}\) 5-HT binding against 5-HT to total 5-HT receptor in the corpus striatum of control and experimental neonatal rats.*

**Table- 134**

Scatchard analysis of \(^{3}\text{H}\) 5-HT binding against 5-HT to total 5-HT receptor in the corpus striatum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>522.06 ± 5.00</td>
<td>36.51 ± 2.50</td>
</tr>
<tr>
<td>Hx</td>
<td>618.38 ± 6.50(^{a})</td>
<td>25.59 ± 1.40(^{a})</td>
</tr>
<tr>
<td>Hx + E</td>
<td>660.66 ± 5.50(^{a})</td>
<td>20.65 ± 1.10(^{a})</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>546.98 ± 5.00(^{b})</td>
<td>24.42 ± 1.50(^{a})</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\(^{a}\) p<0.001 when compared with control

\(^{b}\) p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 131
Scatchard analysis of \[^3\text{H}\] ketanserin binding against ketanserin to 5-HT\textsubscript{2A} receptor in the corpus straitum of control and experimental neonatal rats.

Table- 135
Scatchard analysis of \[^3\text{H}\] ketanserin binding against ketanserin to 5-HT\textsubscript{2A} receptor in the corpus striatum and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>184.38 ± 4.10</td>
<td>3.70 ± 1.14</td>
</tr>
<tr>
<td>Hx</td>
<td>287.50 ± 5.50\textsuperscript{a}</td>
<td>5.21 ± 1.04\textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G</td>
<td>172.50 ± 3.80\textsuperscript{b}</td>
<td>4.96 ± 1.10\textsuperscript{c}</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>175.02 ± 4.20\textsuperscript{b}</td>
<td>3.63 ± 1.15\textsuperscript{b}</td>
</tr>
<tr>
<td>Hx + O</td>
<td>261.90 ± 4.30\textsuperscript{a}</td>
<td>5.39 ± 1.24\textsuperscript{a}</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\textsuperscript{a} p<0.001 when compared with control

\textsuperscript{b} p<0.001, \textsuperscript{c} p<0.05 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O.
Figure- 132
Scatchard analysis of $[^3]$H ketanserin binding against ketanserin to 5-HT$_{2A}$ receptor in the corpus striatum of control and experimental neonatal rats.

Table- 136
Scatchard analysis of $[^3]$H ketanserin binding against ketanserin to 5-HT$_{2A}$ receptor in the corpus striatum and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>184.38 ± 4.1</td>
<td>3.70 ± 1.14</td>
</tr>
<tr>
<td>Hx</td>
<td>287.50 ± 5.5$^a$</td>
<td>5.21 ± 1.04$^a$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>287.52 ± 6.5$^a$</td>
<td>6.29 ± 1.10$^a$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>265.62 ± 5.8$^a$</td>
<td>5.79 ± 1.12$^a$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001 when compared with control

$p<0.001$, $^c$p<0.05 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O.
Figure- 133
Real Time PCR amplification of 5-HT$_{2A}$ receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats

Table- 137
Real Time PCR amplification of 5-HT$_{2A}$ receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>2.75 ± 0.05  $^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.95 ± 0.06  $^b$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.58 ± 0.02 $^b$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-1.68 ± 0.09 $^{b,c}$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>2.97 ± 0.13  $^a$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>2.15 ± 0.10  $^a$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.001, $^b$ p<0.05 when compared to Control

Figure- 134
Real Time PCR amplification of 5-HT transporter mRNA from the corpus striatum of control and experimental neonatal rats

![Graph showing Log RQ values for different experimental groups.]

Table- 138
Real Time PCR amplification of 5-HT transporter mRNA from the corpus striatum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>1.44 ± 0.01(^a)</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.56 ± 0.04(^b)</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.22 ± 0.02(^b)</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.37 ± 0.01(^b)</td>
</tr>
<tr>
<td>Hx + E</td>
<td>1.77 ± 0.03(^a)</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>1.02 ± 0.04(^b,c)</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\(^a\) p<0.001, \(^b\) p<0.05 when compared to Control

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O,
Hypoxic rats glucose and oxygen treated - Hx+G+O, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Scatchard analysis of [³H] QNB binding against atropine to total muscarinic receptor in the corpus striatum of control and experimental neonatal rats.

Table- 139
Scatchard analysis of [³H] QNB binding against atropine to total muscarinic receptor in the corpus striatum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmoles/mg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>169.16 ± 3.60</td>
<td>5.40 ± 0.14</td>
</tr>
<tr>
<td>Hx</td>
<td>104.60 ± 3.80</td>
<td>4.29 ± 0.12</td>
</tr>
<tr>
<td>Hx + G</td>
<td>187.52 ± 2.90</td>
<td>4.88 ± 0.10</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>160.44 ± 3.80</td>
<td>3.93 ± 0.15</td>
</tr>
<tr>
<td>Hx + O</td>
<td>125.84 ± 2.50</td>
<td>4.19 ± 0.14</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.001 when compared with control
b p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O, Hypoxic rats glucose and oxygen treated - Hx+G+O
**Figure- 136**
Scatchard analysis of [³H] QNB binding against atropine to total muscarinic receptor in the corpus striatum of control and experimental neonatal rats.

![Graph showing Scatchard analysis](image)

**Table- 140**
Scatchard analysis of [³H] QNB binding against atropine to total muscarinic receptor in the corpus striatum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Bmax (fmol/kg protein)</th>
<th>Kd (nM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>169.16 ± 3.60</td>
<td>5.40 ± 0.14</td>
</tr>
<tr>
<td>Hx</td>
<td>104.60 ± 3.80&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.29 ± 0.12&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>100.00 ± 2.60&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.86 ± 0.10&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>127.92 ± 4.50&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.26 ± 0.12&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup>p<0.001 when compared with control

<sup>b</sup>p<0.001 when compared with hypoxic group.

Hypoxic rats- Hx, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 137
Real Time PCR amplification of Muscarinic M<sub>1</sub> receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats

Table- 141
Real Time PCR amplification of Muscarinic M<sub>1</sub> receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.98 ± 0.08&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.24 ± 0.04&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.12 ± 0.03&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.54 ± 0.05&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-1.02 ± 0.06&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.95 ± 0.06&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001 when compared to Control
<sup>b</sup> p<0.001, <sup>c</sup> p<0.01 when compared to hypoxic group

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O,
Hypoxic rats glucose and oxygen treated - Hx+G+O, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Real Time PCR amplification of Muscarinic M₂ receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats

Table- 142
Real Time PCR amplification of Muscarinic M₂ receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.88 ± 0.03&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.43 ± 0.02&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.31 ± 0.01&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.51 ± 0.02&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.94 ± 0.04&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.89 ± 0.03&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001 when compared to Control
<sup>b</sup> p<0.001,  <sup>c</sup> p<0.01 when compared to hypoxic group

Real Time PCR amplification of Muscarinic M<sub>3</sub> receptor subunit mRNA from the corpus striatum of control and experimental neonatal rats

Figure- 139

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-1.65 ± 0.05&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.63 ± 0.04&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.52 ± 0.02&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.85 ± 0.04&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-1.74 ± 0.05&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-1.76 ± 0.06&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup>p<0.001 when compared to Control
<sup>b</sup>p<0.001, <sup>c</sup>p<0.01 when compared to hypoxic group

Figure- 140
Real Time PCR amplification of acetylcholine esterase mRNA from the corpus striatum of control and experimental neonatal rats.

Table- 144
Real Time PCR amplification of acetylcholine esterase mRNA from the corpus striatum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>0.55 ± 0.05&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.10 ± 0.04&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.09 ± 0.02&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.26 ± 0.04&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>0.98 ± 0.05&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>0.79 ± 0.06&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup>p<0.001 when compared to Control
<sup>b</sup>p<0.001, <sup>c</sup>p<0.01 when compared to hypoxic group

Figure- 141
Real Time PCR amplification of choline acetyl transferase mRNA from the corpus striatum of control and experimental neonatal rats.

Table- 145
Real Time PCR amplification of acetylcholine esterase mRNA from the corpus striatum of control and experimental neonatal rats.

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.58 ± 0.03&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.14 ± 0.01&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.10 ± 0.01&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.36 ± 0.03&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.10 ± 0.03&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.89 ± 0.04&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup>p<0.001 when compared to Control
<sup>b</sup>p<0.001, <sup>c</sup>p<0.01 when compared to hypoxic group

Hypoxic rats- Hx, Hypoxic rats glucose treated - Hx+G, Hypoxic rats oxygen treated - Hx+O,
Hypoxic rats glucose and oxygen treated - Hx+G+O, Hypoxic rats epinephrine treated – Hx + E, Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Real Time PCR amplification of Hif 1 mRNA from the corpus striatum of control and experimental neonatal rats.

Figure- 142

Table- 146

Real Time PCR amplification of Hif 1 mRNA from the corpus striatum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
</tbody>
</table>
| Hx                  | 0.47 ± 0.01  
| Hx + G              | 0.11 ± 0.01  
| Hx + G + O          | 0.09 ± 0.01  
| Hx + O              | 0.10 ± 0.02  
| Hx + E              | 0.21 ± 0.02  
| Hx + G + E + O      | 0.37 ± 0.02  |

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

* p<0.001 when compared to Control

* p<0.001, * p<0.05 when compared to hypoxic group

Figure- 143
Real Time PCR amplification of SOD mRNA from the corpus striatum of control and experimental neonatal rats.

![Graph showing real-time PCR amplification of SOD mRNA from the corpus striatum of control and experimental neonatal rats.](image)

Table- 147
Real Time PCR amplification of SOD mRNA from the corpus striatum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.046 ± 0.008&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.011 ± 0.005&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.010 ± 0.001&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.076 ± 0.005&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.053 ± 0.004&lt;sup&gt;&lt;sup&gt;a&lt;/sup&gt;&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.043 ± 0.005&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
<sup>a</sup> p<0.01, <sup>b</sup> p<0.001 when compared to Control
<sup>c</sup> p<0.001 when compared to hypoxic group
Real Time PCR amplification of GPx mRNA from the corpus striatum of control and experimental neonatal rats.

Table 148
Real Time PCR amplification of GPx mRNA from the corpus striatum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-0.067 ± 0.006&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.024 ± 0.002&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.018 ± 0.003&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.144 ± 0.005&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-0.077 ± 0.005&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-0.055 ± 0.005&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
<sup>a</sup>p<0.01,  <sup>b</sup>p<0.001 when compared to Control
<sup>c</sup>p<0.001 when compared to hypoxic group

Figure- 145
Real Time PCR amplification of BAX mRNA from the corpus striatum of control and experimental neonatal rats

Table- 149
Real Time PCR amplification of BAX mRNA from the corpus striatum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>1.43 ± 0.03 a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>-0.73 ± 0.06 b</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>-0.49 ± 0.07 b</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.85 ± 0.06 a</td>
</tr>
<tr>
<td>Hx + E</td>
<td>0.82 ± 0.09 a</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>0.45 ± 0.01 b</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.01 when compared to Control
b p<0.001 when compared to hypoxic group

Figure- 146
Real Time PCR amplification of CREB mRNA from the corpus striatum of control and experimental neonatal rats

Table- 150
Real Time PCR amplification of CREB mRNA from the corpus striatum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>-2.57 ± 0.10a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.33 ± 0.09b</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.40 ± 0.08b</td>
</tr>
<tr>
<td>Hx + O</td>
<td>-0.78 ± 0.08b</td>
</tr>
<tr>
<td>Hx + E</td>
<td>-2.09 ± 0.10a</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>-1.97 ± 0.03a</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

a p<0.01 when compared to Control
b p<0.001 when compared to hypoxic group

Real Time PCR amplification of phospholipase C mRNA from the corpus striatum of control and experimental neonatal rats.

Table 151
Real Time PCR amplification of phospholipase C mRNA from the corpus striatum of control and experimental neonatal rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Log RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
</tr>
<tr>
<td>Hx</td>
<td>1.23 ± 0.13 $^a$</td>
</tr>
<tr>
<td>Hx + G</td>
<td>0.12 ± 0.07 $^b$</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>0.11 ± 0.04 $^b$</td>
</tr>
<tr>
<td>Hx + O</td>
<td>0.68 ± 0.13 $^b$</td>
</tr>
<tr>
<td>Hx + E</td>
<td>1.17 ± 0.12 $^a$</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>1.02 ± 0.15 $^a$</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

$^a$ p<0.01 when compared to Control

$^b$ p<0.001 when compared to hypoxic group

Figure-148

cGMP Content in the Corpus striatum of Control and Experimental Groups of Neonatal Rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>cGMP (pmoles/mg protein)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>6.57 ± 1.02</td>
</tr>
<tr>
<td>Hx</td>
<td>26.97 ± 2.01</td>
</tr>
<tr>
<td>Hx+O</td>
<td>23.46 ± 2.45</td>
</tr>
<tr>
<td>Hx+G</td>
<td>16.67 ± 2.14</td>
</tr>
<tr>
<td>Hx+G+O</td>
<td>11.69 ± 1.23</td>
</tr>
<tr>
<td>Hx + E</td>
<td>28.30 ± 1.98</td>
</tr>
<tr>
<td>Hx+G+E+O</td>
<td>27.65 ± 1.22</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 pups.

a p<0.001 when compared to Control
b p<0.001 when compared to Hx

Table-153

cAMP Content in the Corpus striatum of Control and Experimental Groups of Neonatal Rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>cGMP (pmoles/mg protein)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>5.31 ± 1.02</td>
</tr>
<tr>
<td>Hx</td>
<td>23.48 ± 2.01&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx+O</td>
<td>18.25 ± 2.45&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx+G</td>
<td>8.31 ± 2.14&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx+G+O</td>
<td>6.45 ± 1.23&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>34.42 ± 1.98&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx+G+E+O</td>
<td>15.65 ± 1.22&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 pups.

<sup>a</sup>p<0.001 when compared to Control

<sup>b</sup>p<0.001 when compared to Hx

Figure-150
IP3 Content in the Corpus striatum of Control and Experimental Groups of Neonatal Rats

Table-154
IP3 Content in the Corpus striatum of Control and Experimental Groups of Neonatal Rats

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>IP3 (pmoles/mg protein)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>75.00 ± 9.01</td>
</tr>
<tr>
<td>Hx</td>
<td>150.00 ± 7.50 a</td>
</tr>
<tr>
<td>Hx + O</td>
<td>143.50 ± 5.55 a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>62.40 ± 9.25 b</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>74.50 ± 9.05 b</td>
</tr>
<tr>
<td>Hx + E</td>
<td>148.00 ± 5.65 a</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>112.02 ± 6.50 a</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 pups.

a p<0.001 when compared to Control
b p<0.001 when compared to Hx

Table-155
Body Weight of Experimental Animals (1 month old) used for Behavioural Study

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Body weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>75.32 ± 0.35</td>
</tr>
<tr>
<td>Hx</td>
<td>65.53 ± 0.74</td>
</tr>
<tr>
<td>Hx+G</td>
<td>72.35 ± 0.57</td>
</tr>
<tr>
<td>Hx+G+O</td>
<td>73.61 ± 0.94</td>
</tr>
<tr>
<td>Hx+O</td>
<td>68.22 ± 0.25</td>
</tr>
<tr>
<td>Hx+G+E+O</td>
<td>63.44 ± 0.54</td>
</tr>
<tr>
<td>Hx + E</td>
<td>60.24 ± 0.82</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 pups.

\(^a \ p<0.01, \ ^b \ p<0.001\) when compared to Control
\(^c \ p<0.05, \ ^d \ p<0.01\) when compared to Hx

Control rats - C
Hypoxic rats- Hx
Hypoxic rats glucose treated - Hx+G
Hypoxic rats oxygen treated - Hx+O
Hypoxic rats glucose and oxygen treated - Hx+G+O
Hypoxic rats glucose, epinephrine and oxygen treated - Hx+G+E+O
Figure- 151
Behavioural response of one month old control and experimental rats on Y-maze

![Graph showing behavioural response of control and experimental rats on Y-maze.]

Table- 156
Behavioural response of one month old control and experimental rats on Y-maze

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>% of visit to novel arm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>42.86 ± 5.80</td>
</tr>
<tr>
<td>Hx</td>
<td>33.33 ± 4.12&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>50.00 ± 6.11&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>44.55 ± 3.66&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>40.00 ± 2.11&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>30.00 ± 2.98&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>40.00 ± 1.65&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001, <sup>b</sup> p<0.01 when compared to Control
<sup>c</sup> p<0.01 when compared to hypoxic group

Figure- 152
Behavioural response of one month old control and experimental rats on Y-maze

Table- 157
Behavioural response of one month old control and experimental rats on Y-maze

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>% duration of arm visits (seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>23.33 ± 3.25</td>
</tr>
<tr>
<td>Hx</td>
<td>10.05 ± 2.15^a</td>
</tr>
<tr>
<td>Hx + G</td>
<td>15.65 ± 3.05^c</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>20.87 ± 4.51^b</td>
</tr>
<tr>
<td>Hx + O</td>
<td>12.05 ± 1.25^a</td>
</tr>
<tr>
<td>Hx + E</td>
<td>11.33 ± 3.11^a</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>12.56 ± 2.18^a</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

^a p<0.001 when compared to Control

^b p<0.001, ^c p<0.01 when compared to hypoxic group

Figure- 153
Number of trials to criteria of one month old control and experimental rats on Radial arm maze

Table- 158
Behavioural response of one month old control and experimental rats on Radial arm maze

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Number of trials to criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>20.00 ± 1.10</td>
</tr>
<tr>
<td>Hx</td>
<td>42.00 ± 2.20(^a)</td>
</tr>
<tr>
<td>Hx + G</td>
<td>23.00 ± 1.30(^b)</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>22.00 ± 1.45(^b)</td>
</tr>
<tr>
<td>Hx + O</td>
<td>31.00 ± 1.80(^c)</td>
</tr>
<tr>
<td>Hx + E</td>
<td>49.00 ± 3.10(^a)</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>41.00 ± 1.65(^b)</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
\(^a\) p<0.01, \(^b\) p<0.001 when compared to Control
\(^c\) p<0.01 when compared to hypoxic group

Figure- 154
Mean Reference memory error of one month old control and experimental rats on Radial arm maze

<table>
<thead>
<tr>
<th>Experimental group</th>
<th>1st Trial</th>
<th>2nd Trial</th>
<th>3rd Trial</th>
<th>4th Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>5.0±0.60</td>
<td>4.0±0.40</td>
<td>4.0±0.30</td>
<td>3.0±0.10</td>
</tr>
<tr>
<td>Hx</td>
<td>8.0±0.50 (^a)</td>
<td>7.0±0.40 (^a)</td>
<td>7.0±0.40 (^a)</td>
<td>5.0±0.30 (^a)</td>
</tr>
<tr>
<td>Hx + G</td>
<td>5.0±0.54 (^b)</td>
<td>5.0±0.41 (^b)</td>
<td>4.0±0.39 (^b)</td>
<td>3.0±0.22 (^b)</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>4.0±0.43 (^b)</td>
<td>4.0±0.41 (^b)</td>
<td>3.0±0.33 (^b)</td>
<td>2.0±0.29 (^b)</td>
</tr>
<tr>
<td>Hx + O</td>
<td>6.0±0.31 (^a,b)</td>
<td>5.0±0.33 (^a,b)</td>
<td>5.0±0.23 (^a,b)</td>
<td>4.0±0.19 (^a,b)</td>
</tr>
<tr>
<td>Hx + E</td>
<td>8.0±0.56 (^a)</td>
<td>8.0±0.54 (^a)</td>
<td>7.0±0.33 (^a)</td>
<td>6.0±0.34 (^a)</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>7.0±0.30 (^a)</td>
<td>7.0±0.37 (^a)</td>
<td>6.0±0.22 (^a)</td>
<td>4.0±0.24 (^a)</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

\(^a\) p<0.01 when compared to Control
\(^b\) p<0.01 when compared to hypoxic group

Figure- 155
Mean working memory error of one month old control and experimental rats on Radial arm maze

Table- 160
Mean working memory error of one month old control and experimental rats on Radial arm maze

<table>
<thead>
<tr>
<th>Experimental group</th>
<th>1\textsuperscript{st} Trial</th>
<th>2\textsuperscript{nd} Trial</th>
<th>3\textsuperscript{rd} Trial</th>
<th>4\textsuperscript{th} Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>3.0 ±0.32</td>
<td>3.0 ±0.16</td>
<td>2.0 ±0.28</td>
<td>1.0 ±0.31</td>
</tr>
<tr>
<td>Hx</td>
<td>5.0 ±0.30 \textsuperscript{a}</td>
<td>4.0±0.24 \textsuperscript{a}</td>
<td>4.0±0.33 \textsuperscript{a}</td>
<td>3.0±0.26 \textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G</td>
<td>3.2±0.14 \textsuperscript{b}</td>
<td>3.0±0.16 \textsuperscript{b}</td>
<td>2.5±0.23 \textsuperscript{b}</td>
<td>2.0±0.22 \textsuperscript{b}</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>3.0±0.23 \textsuperscript{b}</td>
<td>2.6±0.25 \textsuperscript{b}</td>
<td>2.0±0.20 \textsuperscript{b}</td>
<td>1.5±0.16 \textsuperscript{b}</td>
</tr>
<tr>
<td>Hx + O</td>
<td>4.8±0.30 \textsuperscript{a}</td>
<td>4.5±0.24 \textsuperscript{a}</td>
<td>3.2±0.33 \textsuperscript{a}</td>
<td>3.0±0.26 \textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + E</td>
<td>5.0±0.14 \textsuperscript{a}</td>
<td>4.6±0.16 \textsuperscript{a}</td>
<td>3.7±0.23 \textsuperscript{a}</td>
<td>4.0±0.22 \textsuperscript{a}</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>5.5±0.23 \textsuperscript{a}</td>
<td>5.0±0.25 \textsuperscript{a}</td>
<td>4.0±0.20 \textsuperscript{a}</td>
<td>4.0±0.16 \textsuperscript{a}</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
\textsuperscript{a} p<0.01 when compared to Control
\textsuperscript{b} p<0.01 when compared to hypoxic group
Figure- 156
Escape latency of one month old control and experimental rats in Morris Water maze experiment

Table- 161
Escape latency of one month old control and experimental rats in Morris Water maze experiment

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>1st Trial</th>
<th>2nd Trial</th>
<th>3rd Trial</th>
<th>4th Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>15.0±1.34</td>
<td>11±1.78</td>
<td>10±1.55</td>
<td>7±0.98</td>
</tr>
<tr>
<td>Hx</td>
<td>35.6±1.21 *</td>
<td>30±1.56 *</td>
<td>29±1.71 *</td>
<td>27±1.22 *</td>
</tr>
<tr>
<td>Hx + O</td>
<td>25.4±0.45 ‡</td>
<td>22±0.44 ‡</td>
<td>20±0.52 ‡</td>
<td>18±0.51 ‡</td>
</tr>
<tr>
<td>Hx + G</td>
<td>20.4±0.98 *</td>
<td>19±0.87 *</td>
<td>21±0.90 *</td>
<td>16±1.33 *</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>27.2±1.25 *</td>
<td>23±1.42 *</td>
<td>17±1.20 ‡</td>
<td>15±1.32 ‡</td>
</tr>
<tr>
<td>Hx + E</td>
<td>27.0±0.46 *</td>
<td>25±0.48 *</td>
<td>24±0.55 *</td>
<td>20±0.65 *</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>25.4±1.10 ‡</td>
<td>25±0.99 ‡</td>
<td>23±1.12 ‡</td>
<td>20±1.50 ‡</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.
* p<0.001 ‡ p< 0.01 when compared to Control
† p<0.001 when compared to hypoxic group
Figure- 157
Time spent in platform quadrant by one month old control and experimental rats in Morris Water maze experiment

Table- 162
Time spent in platform quadrant by one month old control and experimental rats in Morris Water maze experiment

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Number of trials to criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>4.00 ± 0.43</td>
</tr>
<tr>
<td>Hx</td>
<td>2.00 ± 0.56 &lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + O</td>
<td>3.00 ± 0.69 &lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G</td>
<td>4.00 ± 0.77 &lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + O</td>
<td>4.50 ± 0.28 &lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + E</td>
<td>2.50 ± 0.44 &lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hx + G + E + O</td>
<td>3.00 ± 0.51 &lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Values are Mean ± S.E.M of 4-6 separate experiments. Each group consist 6-8 neonatal rats.

<sup>a</sup> p<0.001 when compared to Control
<sup>b</sup> p<0.001, <sup>c</sup> p<0.01 when compared to hypoxic group
