MATERIAL AND METHODS
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The present study was conducted at M.L.B. Medical College, Hospital, Jhansi (U.P.). The study included a combined retrospective and prospective analyses of head injury cases admitted in this hospital from April 1989 to March, 1991.

Only those patients who had been admitted to emergency department of M.L.B. Medical College, Hospital, Jhansi as case of craniocerebral injury and had suffered certain period of unconsciousness, were taken into consideration.

Patients were divided into two broad groups:

A. **STUDY GROUP**: Those patients which were given PYRITINOL after sustaining craniocerebral injury for prolonged periods upto 3 months.

B. **CONTROL GROUP**: Those which were not given pyritinol after sustaining head injury.

Pyritinol injections, tablets and syrup were used under the brand name of "ENCEPHABOL" available in Jhansi manufactured by E. Merck of Darmstadt FR. Germany.

Dose of Encephabol was 5-15 mg/kg body weight depending upon severity of injury.
Generally 1-2 ampoules of Encephabol were administered daily but in severe cases upto 5 ampoules were given daily with infusion. After recovery to consciousness patients were taken on oral dose of 1-2 tablets three times a day. Patients below 50 kg body weight were given 1 tablet (100 mg) three times daily and above 50 kg of body weight were given 1-4 tablets (Encephabol 200 mg) three times daily.

In control group the usual conventional treatment for head injury was given but in study group Encephabol was given in appropriate dosage along with conventional medical and surgical treatment of head injury.

Certain terms which have repeatedly been used in our observation are defined as under:

1. Closed head injury: is one in which scalp is intact and there is no communication between intradural contents and exterior.

2. Open head injury: implies communication between intradural contents with exterior.

3. Mild head injury: one without loss of consciousness, or only a brief period of unconsciousness with return to normal function within 24 hours and no clinical or radiological of any fractures or dural tears. Patients with Glasgow coma scale between 13-15 were kept in this group.
4. Moderate head injury: A Glasgow coma scale between 10-12 after 24 hours of head injury was considered in this group.

5. Severe head injury: Similarly a Glasgow coma scale of less than ten was considered in this group.

6. Coma: it is state of complete loss of consciousness from which a patient can't be aroused even by most powerful stimuli. Using Glasgow coma scale it is defined as "no eye opening, not obeying commands, no comprehensible verbal response.

7. Glasgow coma scale: Quantifies the severity of injury by the best response to stimuli in terms of eye opening, motor response and verbal response. Its great advantage is that it is universally accepted and observation charts based on this system allow a graphical representation of the change in neurological status the significance of which can be appreciated by all caring for the patients.

All the cases were subjected to a thorough history and examination including general, systemic and local and specific neurological examinations.

A. HISTORY

History included introduction: name, age, sex, address, ward/bed, weight, diagnosis, date of admission, date of discharge, followed by brief history with mode of
injury either hit by some automobile, fall from height (tree or roof), history of loss of consciousness, history of discharge or bleeding from natural orifices, CSF rhinorrhea or otorrhea, history of vomitings etc.

B. **CLINICAL EXAMINATION**

1. **General Physical examination**: Pulse, temperature, respiratory rate, blood pressure, anaemia, cyanosis, hydration etc.

2. **Systemic examination**: In brief examination of respiratory system, Genito-urinary system, nervous system, cardiovascular system.

3. **Specific local examination/Examination of injuries**: Injuries over scalp: number, size, type, depth etc. any fractures of skull bones and other associated injuries like thoracic cage injury, bony pelvis injury, any major fracture of long bones or other bones.

4. **Specific Neurological Examination**: included Glasgow coma scaling. Assessed in terms of three parameters i.e. Eye opening, best motor response, verbal response, further details were discussed in working proforma viz. power in all thumbs.

5. **Enquiry/Examination for specific neurological sequelae of craniocerebral trauma.**

- **Headache**: When present it was complained by patient himself. This entry did not include the post injury
infective headaches (meningitis).
Memory losses: inability to grasp and retain images and ideas is a marked feature of acute toxic delirium, organic brain syndrome and occasionally it is a sequele of cranioencebral injury. In formulating questions on memory losses, regard was paid to patient's educational background and his/her likely personal interest.

An enquiry was made about days of week, of months (Hindi, or English), about the name of public figures whether patient is able to read the paper and to recall after a short time. Other enquiries included asking the patient to repeat seven digits forwards and five backwards.

To children and illiterate subjects some pictures of common objects were used to show them and asked after some time to recall it. For orientation and memory losses, a single enquiry common to all patients was made in addition to above tests.

The patients were asked to state the names of his/her nearest relatives, address of his home, the date of his birth, the place where he is at present time and the day of week.

**IMPAIRMENT OF CONCENTRATION**

It was assessed by tests of reasoning. In other
tests the patients were asked to take sevens from a hundred
(i.e. 100, 93, 86, 79 .......) or the absurdities test
(i.e. what would be absured if I told you I had three
brothers Satish, Akhilesh and me?

MENTAL IRRITATION

It is indicated by shouting, crying and abusing
by patient or patient trying to jump in bed or grossly
restless.

Every patient was asked to come to O.P.D. for
follow ups for at least 3 months (12 weeks).

Every details about each patient was recorded on
a standard working proforma given below:

WORKING PROFORMA

MRD No. _____

Patient's name

D.O.A.

Age/Sex

Ward/Bed

Weight

Diagnosis

Consultant

Brief History:

Clinical Examination:

Pulse

Pupillary reaction

B.P.

Plantar response
**LIMB MOVEMENT**

<table>
<thead>
<tr>
<th>Upper Limb</th>
<th>Lower Limb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal power</td>
<td>Normal power</td>
</tr>
<tr>
<td>Mild weakness</td>
<td>Mild weakness</td>
</tr>
<tr>
<td>Severe weakness</td>
<td>Severe weakness</td>
</tr>
<tr>
<td>Spastic flexion</td>
<td></td>
</tr>
<tr>
<td>Extension</td>
<td>Extension</td>
</tr>
<tr>
<td>No response</td>
<td>No response</td>
</tr>
</tbody>
</table>

**Other symptoms**
1. Headache
2. Memory
3. Mental irritation
4. Impairment of concentration

Date of discharge: