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The present study was performed to evaluate the change in blood glucose level due to the effect of ether, and 3 muscle relaxant Pancuronium, Gallamine and Vecuronium when they are used for general anaesthesia. In the present study only adult patient were selected. Their age ranged between 20-60 years to circumvent the variables at the extrems of age. Patients subjected to routine surgical procedures were included in this study and emergency procedure were excluded to maintain standard condition as far as possible. All patients were of ASA grade I or II.

In this study same premedication drugs, induction agents and supplementary analgesia drugs were used in all cases to avoid the influence on the dosage and action of Ether or any muscle relaxant drug.

The present study shows that in ether group, when we take the mean of the value of blood sugar level of all 15 patients then we see that there was 10.8% rise in II sample when it is compared with 1st sample (control sample). While in III sample rise was 21.23% in IVth sample rise was 36.06% and in the Vth sample
this rise was 37.3% of the control (sample) value (Table No. 5).

In case of Pancuronium group this rise in IIInd sample was 4.32% of the 1st (control) sample. In the same way when compared with control sample this rise was 4.82%, 4.24% and 8.96% in sample III, IV and Vth respectively (Table No. 6).

In case of Gallamine the rise in blood glucose level in terms of percentage of control value was 5.15% in IIInd sample 3.001% in III sample 5.43% in IVth sample and 11.1% in Vth sample (Table No. 7).

In case of Vecuronium the rise in blood glucose level in terms of percentage of control value was 8.3% in II sample 13.2% in III sample 15.7% in IV sample and 18% in Vth sample.

As shown in table no. 5-7 we can compare the rise at different interval during the use of different drugs.

After premedication rise in blood sugar level is below 10% in all case wise ether, pancuronium, gallamine and vecuronium. But after 5 minutes of intubation there was above 20% rise in case of ether while in case of pancuronium and gallamine it was
below 5% and in case of vecuronium where it was above 13% rise when compared with control value.

After 30 minutes of intubation the percentage rise in case of ether was above 35% while in case of pancuronium and gallamine it was around 5% except in case of vecuronium where it was about 15%.

After extubation the percentage rise in case of ether was above 37% while in case of 3 relaxants it was about 9%, 11% and 18% respectively.

The rise in blood sugar level upto the pre-medication is almost equal in all four group of this study.

It is well known fact that preanaesthetic medication alone does not completely prevent the effect of preoperative psychic stress on blood glucose.

Any form of stress is accompanied by change in the level of cortisol catecholamine growth hormone insuline and glucogone (Oyana an Matsuki 1970) which are intimately associated with the regulation of blood glucose.
Increase in blood glucose concentration has long been known to occur after surgery trauma or anaesthesia as a result of sympathoadrenal stimulation (Mehta and Burton 1975). The stress has 3 component

(1) the psychic stress due to fear of impending operation,
(2) stress due to anaesthesia,
(3) stress due to surgical trauma (Engquist and Wither 1972).

In this way the stress factor which is common in all four groups of this study could not be elementated completely even with the preanaesthetic medication. In this way the rise in blood glucose level in all groups, more or less is a must where this stress is responsible for such elevation of blood glucose level.

Although this rise varies with different groups for example there is 10.8% rise in case of ether group 4.32% in pancuronium group 5.15% in gallamine group and 8.3% in case of vecuronium group. But after start of surgery and use of different anaesthetic drug like ether pancuronium, gallamine and vecuronium there is steep rise in blood glucose level upto about 40% of value which was taken after premedication in case of ether group.
While it is between 5-16% in other three group. Other factors like surgical trauma and stress being common. There is only high rise in case of ether group and not so much in other relaxants group. This gradual increase in the blood glucose level in case of ether from 10.8% to 37.3% may be due to the use of ether because in other relaxant groups, this rise is below 18% which may be due to the surgical trauma and stress.

But in case of ether there is marked and progressive rise in blood sugar level because the mean blood sugar level at the time of induction was 91.4mg% which increase upto 114.3mg%. There was change of 23mg% in blood glucose level. Ostama et al 1971 reported a progressive rise in blood sugar level due to ether anaesthesia.

Similar findings was observed in this study during ether anaesthesia and surgery.

In case of pancuronium group there is little rise in blood glucose level before the use of relaxant i.e. about 4.32% rise, but after the use of relaxant there is very little change in blood glucose level that was upto only about 8.96-4.32 = 4.64%.
In this group total mean of blood glucose level was 84.2mg% which was at the time of induction and this increases upto only 88.46mg% at the end of surgery and anaesthesia. Thus the only change in blood glucose level was 88.46-84.20 = 4.26mg% (Table No. 6).

In case of gallamine at the time of induction the rise in blood glucose level was 5.15% which rises upto 11.1% at the end of surgery and anaesthesia.

There was mean blood glucose level 84.90mg% at the time of induction which rises upto 89.73mg% at the end of surgery and anaesthesia. It means there is only change of 4.83% during the whole process of anaesthesia surgery. In the similar way in case of vecuronium at the time of induction the mean blood sugar level was 88.66mg% which reaches upto 96.26mg% causing the only differance of 92.26-88.66 = 7.60mg%.

As for as no work regarding the effect of muscle relaxent on blood glucose level is available so in absence of the findings of previous work this is not possible to compare with the findings of present study.
In this way the change in blood glucose level due to the influence of ether and other 3 muscle relaxant was as under:-

Group I Ether - 23.00mg% or 40%
Group II Pancuronium - 4.26mg% or 4.64%
Group III Gallamine - 4.83mg% or about 6%
Group IV Vecuronium - 7.80% or 5%

This shows that there is very highly significant rise in blood glucose level during the ether anaesthesia while in case of relaxants there is only significant rise in blood sugar level.