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The older patient has a markedly reduced ability to respond to induced hypercapnosea or hypoxia, or both. There are physiological, pharmacodynamic and pharmacokinetic changes that accompany aging. It must be remembered that the elderly patient may have disease-related changes. The elderly are medically known for their large variability. Therefore, it is important that each patient be approached on an individual basis.

Aging per se most likely is not a major factor in predicting the risk of anaesthesia and surgery. Stephan (1984) reported that the mortality in 1000 patients 65 years of age or older is 5.8%. 85% of these patients had three or more pre-operative abnormalities. With this kind of data, one can see that physiological or disease state, or both is a better predictor of outcome than is age alone.

Therefore, in elderly patients it is important to monitor to detect untoward events and prevent harm.
The recent introduction of pulse oximeter has provided a continuous, non-invasive method to detect \( \text{SaO}_2 \). Pulse oximetry has proved an important monitor to detect arterial hypoxaemia as decrease in \( \text{SpO}_2 \) precedes changes in skin colour or haemodynamic variables. It has been again established that changes in heart rate and heart tones or ECG are late signs for the detection of arterial hypoxaemia (in only 17\% of the major desaturation episodes did haemodynamic variables change) (Cote and co-workers, 1988).

The present study was conducted in the series of 30 elderly patients above 50 years of age. The monitoring done with the pulse oximeter (Minolta Puls-CX-7) and electrocardiography.

In this study, the \( \text{SaO}_2 \) was not affected by age of the patient as also confirmed by Nakatsuka and Bolling (1989).

The \( \text{SaO}_2 \) was significantly affected by the type of anaesthetic technique. Under general anaesthesia there was fall in \( \text{SaO}_2 \) (96.40\% to 91.70\%). But there was statistically significant fall in \( \text{SaO}_2 \) under subarachnoidal analgesia with bupivacaine (96.40\% to 89.60\%). These patients which were given subarachnoidal analgesia responded very well to the oxygen therapy. This finding
is not in accordance with the study of Nakatsuoka and Solling (1989) who did not find any significant changes in different anaesthetic techniques.

The $\text{SaO}_2$ was significantly affected by the fall in blood pressure during the intra-operative period and post-operative period. It was affected in group A under general anaesthesia non-significantly but in subarachnoidal block $\text{SaO}_2$ was significantly lowered (96.4% to 89.6%) with fall in blood pressure (138.3/72.4 to 107.7/71.5 mm of Hg.). It is so because immediately after giving the subarachnoidal analgesia there is sympathetic block which leads to fall in mean blood pressure. Due to reduction in the blood pressure there was tissue hypoxia or lowered arterial oxygen concentration towards the peripheral tissue. This episode was detected by finger probe and oximeter shown the fall in the $\text{SaO}_2$. With corrective measures the blood pressure was restored and $\text{SaO}_2$ again changed significantly in post-operative period (89.6 to 96.3%).

The $\text{SaO}_2$ was significantly affected by change in pulse rate in intra-operative and post-operative period. In general anaesthesia there was no significant effect of change in pulse rate over the $\text{SaO}_2$. In subarachnoidal analgesia there was significant change in $\text{SaO}_2$ (96.4 to 89.6) with change in pulse rate (87.6 per minute to
77.5 per minute) during intra-operative period. While in post-operative period there was again significant increase in \textit{SaO}_2 (96.3\%) with increase in pulse-rate (91.6 per minute from 77.5 per minute). Due to fall in blood pressure and pulse rate there was reduced cardiac output. Due to fall in cardiac output peripheral tissue perfusion was reduced leading to fall in \textit{SaO}_2. On the contrary, the study carried out by Nakatsuka and Rolling (1989) shown that “the anaesthesia technique had no significant effect on \textit{SaO}_2. Due to inhalation of 100\% oxygen in post-operative period there was improvement in \textit{SaO}_2 in both techniques of anaesthesia.

The ECG changes were not significant. The pre-operative ECG findings were normal in both the groups as the patients were selected from ASA grade I and II for elective surgery. Intra-operatively, due to fall in \textit{SaO}_2, there were no changes whatsoever in ST-T segments in both the groups A and B as immediate remedies were instituted as soon as there was hypotension or fall in pulse rate. In group A only one patient out of 10 patients showed increase in P-R interval and in group B only 2 patients had increase in PR interval.

In group A ectopic beats were observed in one patient out of 10 patients under general anaesthesia with ether, while in group B under subarachnoidal analgesia
ectopic beats were observed in four patients out of 20. These supraventricular extrasystoles were disappeared themselves after few seconds of appearance. There was not another significant change in ECG recordings.

In post-operative period also there was no significant ECG changes whatsoever.

This study demonstrated that the \( \text{SaO}_2 \) was significantly affected by the fall in pulse rate and blood pressure in intra-operative period and post-operative period in patients in whom subarachnoidal block was given. In patients who were operated under general anaesthesia with ether, there was change in \( \text{SaO}_2 \) but not significantly. The study of Nakatsuka and Bolling (1989) confirmed that supplementation of \( O_2 \) inhalation decreased the incidence of hypoxaemia significantly.

Age, post-anaesthesia, body weight, sex, systemic diseases had no significant effect on hypoxaemia.