INTRODUCTION
PULSOXIMETRY has been recommended as a standard of care for every general anaesthetic (Julien et al., 1989). This technique, virtually unknown in anaesthesia 5 years ago, has been so readily adopted for several reasons. The device provides valuable data regarding blood oxygenation and this information is obtained easily, continuously and non-invasively. Continuous assessment of arterial oxygenation is important in clinical management of critically ill or anaesthetized patients. Analysis of arterial blood gases is reliable but is invasive and only provides intermittent information likely to miss the transient but important episodes of hypoxaemia. Analysis of arterial blood gases and transcutaneous oxygen measurements both provide oxygen tension (P_{O_2}) data from which the oxygen content and percentage of hemoglobin saturated with oxygen can be estimated. Arterial oxygen saturation of hemoglobin can be determined directly and continuously in vivo by using spectrophotoelectric oximetric techniques. The wavelength dependence of reduced versus oxyhemoglobin is evident from the prominent colour differences in spectral light absorbance of "red" oxyhemoglobin and "blue" reduced hemoglobin.
Pulse oximetry functions by positioning an
pulsating arterial vascular bed between a two-wavelength
light source and a detector. The pulsating vascular bed
by expanding and relaxing, creates a change in the light
path length that modifies the amount of light detected.
The familiar plethysmograph wave form results. Because
the detected pulsatile wave form is produced solely from
arterial blood, using the amplitude at each wavelength and
Beer's law allows exact beat-to-beat continuous calculation
of arterial hemoglobin oxygen saturation with no interference
from surrounding venous blood, skin, connective tissue or
bone.

Hypoxemia has been a matter of concern not only
in the operating room but also in the immediate post-
operative period. However, clinical assessment of hypoxemia
is rather difficult. The detection of cyanosis, the
traditional sign of hypoxemia, is very unreliable. The
human eye is a poor judge of changes in skin colour,
particularly in dark-skinned patients and under fluorescent
lights. Cyanosis is only detectable when the arterial
oxygen saturation (SaO₂) is below 80% (Makatsuka et al., 1989).
The recent introduction of “pulse oximetry” has provided
a continuous, non-invasive, real time method to detect SaO₂
intra-operatively and post-operatively. Indian women
frequently suffer from anaemia. The risk factors of intra-
operative and post-operative hypoxemia in “Hysterectomy”
operations with pre-existing anaemia under different
techniques of anaesthesia may be injurious to the patients.

A paper published as early as 1951 in "ANESTHESIOLOGY" concluded prophetically that "on many occasions this instrument has detected anaemia when observations of pulse, blood pressure and colour of the patient and peripheral vascular tone have shown no abnormalities".

The clinical utility of the non-invasive oximeter in the operating room was discovered in 1980s by William New, an anaesthesiologist at Stanford University, realizing that a continuous, non-invasive monitor of oxygenation would be useful to anaesthesiologists.

Severe arterial hypoxaemia may occur even during the most meticulously administered anaesthetic. Prolonged moderately severe hypoxia may be associated with pre-existing anaemia and respiratory disease. Anaemia is very frequently associated with Indian women and anaesthetic practice more so when major surgery like hysterectomy operations.

It was therefore, thought worthwhile to evaluate changes in oxygen saturation by pulse oximetry intra-operatively and in immediate post-operative period in hysterectomy operations planned under different anaesthetic techniques.