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'That which can not be easily treated had better be prevented'

J. Alfred Lee, Synopsis of Anaesthesia.

The post-graduate educational number of the British Journal of Anaesthesia, dated March 1963, consists of a symposium entitled "Vomiting and Anaesthesia". In the editorial appear the words, "we do not believe that the pages that follow will be the last words to be written on what is one of the most important causes of pre-operative mortality and post-operative morbidity". In ending the editorial the hope is expressed that the ordinary anaesthesiologist with the help of the scientist would, by advancing the art and dispelling the danger, save the patient from "the black cloud of his own vomiture". The first statement is undoubtedly true.

Whenever the protection afforded the tracheobronchial tree by the laryngeal reflexes is breached, the patient's life is placed in jeopardy. While this reflex protection is rapidly rendered ineffective by unconsciousness:
or muscle paralysis, even at other times, it by no means, affords total protection.

Vomiting and regurgitation of gastric contents, followed by pulmonary aspiration, is an infrequent but well recognized hazard in the practice of anaesthesia. It is a major cause of post-anaesthetic morbidity and mortality. Silent regurgitation of gastric contents occurs, more frequently than is realised, even with an endotracheal tube in place. The silent regurgitation is more sinister in that there are no active signs initially to warn the clinician of the impending danger.

It would be wrong to think that aspiration occurs only in anaesthetized patient. Pulmonary aspiration may occur while the patient is conscious, as may happen in aspiration of meconium by the newborn, peanuts by the infant, water by the person who nearly drowns and gastric contents by parturient or the patient in an intensive care unit.

The reports on maternal mortality, published in 1969 and 1972, highlighted the increase in the number of deaths attributable to anaesthetic causes which contrasted with the decline in mortality from this cause over the previous decade and to the continued overall decline in maternal mortality. In the 1969 report, nearly 50% of the deaths attributable to the anaesthetic complications
were due to the causes which in the report was termed "avoidable". Of 24 case reports in this document in which death was regarded as "avoidable", inhalation of gastric contents was described as the cause of death in 18 cases (75 percent). The syndrome that develops following inhalation of gastric contents during anaesthesia for obstetric procedures was first reported by Hall (1940) and subsequently by Mendelson (1946). The latter drew attention to the asthma-like syndrome which is the result of inhalation of acid gastric contents producing a chemical pneumonitis. The severity of the lesion depends on the pH of gastric contents. Bannister and Sattilaro (1962) suggested that Critical pH below which symptoms become severe is 2.5. Crawford (1970), however, has recently suggested the pH 3 should be regarded as the critical level. Gastric fluid volumes of 0.4 ml/kg body weight have been stated to incur greater risk. However, Steepling considers 20 ml (0.3 ml/kg) potentially hazardous. The nature and extent of the damage depend not only on the pH and volume aspirated but also the composition of the aspirate, especially its toxicity and the presence of large particles or food material.

As is commonly believed, this complication of post-anaesthetic aspiration pneumonitis, is not only limited to obstetric anaesthesia alone, but, as evidenced
by the work of Culver, Makel and Beecher (1951) unselected non-obstetrical surgical patients also showed regurgitation in 26.3 percent, aspiration in 16.3 percent and vomiting in 8 percent cases after administration of general anaesthesia. Other studies have confirmed this potential danger in emergency as well as elective operations.

Dinnick (1964), analysing 400 deaths in which anaesthesia was casually related, found 31 non-obstetric patients and 12 obstetric patients in whom regurgitation or vomiting of fluid material was the principal factor. In a recent paper from Auckland, the rate of mortality from pulmonary aspiration syndrome all over hospital, between 1967 and 1969 was 1 in 11000 of non-obstetric patients.

(Hutchinson and Newson, 1975).

The diagnosis of aspiration pneumonitis may be initially confused with pulmonary oedema - the distinction must be made, because the treatment of the two conditions is different. The aspiration of solid material leading to symptoms and signs of bronchial obstruction must be recognised and relieved.

Prevention of the initial insult is the best approach. This can be achieved by meticulous attention to detail and surveillance of gastric emptying by physical
or pharmacological means. The single most important factor in the patho-physiological progression of the syndrome is the degree of acidity of the aspirated material and any means to increase the pH of the gastric contents of patients at risk should be used.

Keeping this problem in mind, the present study was undertaken at M.L.B. Medical College Hospital, Jhansi, with the following aims -

1. To assess the efficacy of oral antacids, Cimetidine and anticholinergic drugs in increasing gastric pH to prevent aspiration pneumonitis.

2. To assess the efficacy of individual drug in producing the desired effect with minimal or no undesirable side effects.