Editorial

OBESITY AND THE RISKS OF SURGERY

Obesity causing a decrease in life expectancy, has been well established by various clinical trials including those of life insurance companies (Keys et el., 1972; Society of Actuaries, 1959). Other systemic diseases are aggravated by obesity, cardio-vascular diseases, hypertension, kidney and gall-bladder diseases and diabetes mellitus are all associated with obesity. The heart rate, cardiac output and stroke volume increase which in turn cause cardiac enlargement (Alexander and Peterson, 1972). Hypertension brings about vascular changes especially in the kidneys which project as thickening of the small arteries and hyaline arteriosclerosis eventually leading to slow atrophy of the kidneys.

The relationship of gall-bladder disease and obesity is well known (Dublin et al., 1934; Rimm et al., 1972), with gallstones being frequently encountered in the obese. Glucose tolerance is impaired in the overweight patient. The Beta cells of the islets of Langerhans proliferate and the serum insulin level is high (Bierman et al., 1968). Pregnancy in the obese women often shows toxaemia (Tracy and Miller, 1969). Pyelonephritis is more frequently encountered in these subjects, so also the duration of labour in primiparous obese women is longer than the non-obese (Peckham and Christianson, 1971). Alongwith all these disadvantages the obese patient faces a greater risk when undergoing surgery. Anaesthesia problems come up, as difficulty in intravenous therapy, intubation, ventilatory problems and uptake and distribution of anaesthetic agents. Finding a good vein to maintain intravenous infusions is often difficult in the obese. An obese neck with reduced motility of the cervical spines aids in the non-availability of a good airway and thus causing hindrances in application of the anaesthetic mask and intubation. Aspiration pneumonitis is encountered more frequently in the overweight who tend to have a larger gastric residue of a low pH.

Induction of anaesthesia may be prolonged in the obese (Warner and Garrett, 1968). Difficult ventilation due to the thick chest wall and hindrance to the diaphragmatic movements by the adipose abdomen causes a lower alveolar concentration of the gas. A larger quantity and concentration of anaesthetic agents is required during maintenance due to the continued uptake by the adipose tissue. For regional anaesthesia, the landmarks may be hidden beneath a thick layer of fat causing difficulty in location. In spinal anaesthesia high levels may be used due to the obese abdomen.

In the post-operative period, hypoventilation creates a low expiratory reserve volume and tidal volume (Catenacci et al., 1961), which in turn decreases the arterial oxygen tension. This causes the compensatory mechanism of increased cardiac output to come into play which may be limited in the older patients. Wound infection rate is higher in the obese patients (Stone et al., 1976). This may be attributed to the technical difficulties resulting in longer operations and more trauma to the abdominal wall by vigorous retraction. The thick layer of subcutaneous fat with a poor blood supply also has a lowered resistance to infection. An increased tension on the wound due to the excessive intra-abdominal fat is a bigger risk factor to wound dehescence post-operatively. Also incisional hernias are more often seen in the obese subjects. Obesity also presents itself as a predisposing factor to post-operative thrombo-phlebitis and pulmonary embolism. The relative immobility of the obese along-with a raised serum fatty acid level which favours coagulation (Connor, 1962; Connor and Poole, 1961) may be attributed as the promoting factors. With severe exogenous obesity presenting problems in diagnosis, surgery, anaesthesia and associated with poor wound healing, wound dehescence and thrombo-embolic phenomenon, the decision for undertaking surgery should be carefully weighed against the risk factors.

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