

Anaesthetic Depth, Complications After Surgery



Millions of people each year undergo anaesthesia for different types of surgical procedures. Anaesthetists are trained professionals, the drugs used to administer anaesthesia are relatively safe, and the patient is extensively monitored. Yet despite all these advances, complications from anaesthesia following major surgery continue to occur. Over the past few years, there have been isolated reports that perhaps the depth of anaesthesia may be a factor in the cause of complications after surgery. However, due to a lack of randomised trials, this is hard to prove.

It is well known that large doses of an anaesthetic can cause haemodynamic changes (hypotension, tachycardia) and induce dysfunction of the immune and inflammatory responses. Thus, there is a possibility that deep anaesthesia could result in poor tissue hypoperfusion, and subsequently lead to organ malfunction. However, there continues to be a debate about whether deep anaesthesia can lead to a higher incidence of cognitive impairment and postoperative delirium. The current recommendation by many anaesthesiologist societies and critical care specialists is to maintain light sedation in patients undergoing surgery. However, this recommendation has been based on low-quality clinical evidence, and much of the present evidence is confusing and inconsistent.

An international, randomised, controlled study reports that one of the risk factors for complications after major surgery may be the depth of anaesthesia. Australian researchers recruited 6644 patients from 73 healthcare institutions in 7 countries, aged 60 and above, and randomly assigned them to treatment or control group. All had significant morbidity and were expected to undergo major surgery lasting more than 2 hours, with an anticipated hospital stay of at least 48 hours. The participants were randomly assigned to receive either light general anaesthesia (bispectral index target 50) or deep general anaesthesia with a BIS target of 35. The anaesthesiologists were also asked to maintain the haemodynamics under an appropriate range for each patient. The primary outcomes were 1-year all-cause mortality.

Findings from the study revealed that grade 3 adverse events occurred in 954 (29%) of patients in the light anaesthesia group (BIS 50) and in 909 (27%) of patients in the deep anaesthesia group (BIS 35) and grade 4 adverse effects in 265 (8%) and 259 (8%) of patients, respectively. The most commonly reported adverse events included cardiac events, vascular problems, infections, and malignancies.

Findings show that light general anaesthesia was not associated with lower 1-year mortality when compared to deep general anaesthesia. The researchers concluded that their trial defined a broad range of depth of anaesthesia that can be delivered to patients at risk of complications during surgery. No significant reduction in morbidity or mortality were observed either.

Source: [The Lancet](#)

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