

1. Psychological consequences of awareness, Prof Michael Wang (Leicester)

Episodes of full awareness with explicit recall during operations with general anaesthesia (GA) are more common than many realise (between 1 in 500 and 1 in 1000 operations¹⁻³). Awareness with full recall is usually distressing and associated with acute PTSD reactions. A recent study by our group investigated the specific phenomenology of the traumatic reaction following anaesthetic awareness in 22 patients. These include nightmares, night terrors (both often related to paralysis in content), insomnia, avoidance of hospitals, medical settings and medical personnel, loss of trust in establishment figures, relationship difficulties and clinical depression.

But if anaesthetic awareness is so relatively common, why don't clinical anaesthetists know about it? Traumatized patients often do not complain or inform clinicians of their experience²⁹. They exhibit phobic avoidance of medical personnel, especially those involved in the awareness episode²⁵.

But not all patients who have had an awareness experience are traumatized^{4,29}. Some of the factors that account for this variation include gender, personality, history, experience of paralysis, experience of pain, intra-operative thoughts and beliefs, and reactions of hospital staff and relatives.

The common reason for failure by anaesthetists to identify intra-operative awareness is the paralyzing effects of muscle relaxants; contrary to traditional belief there are no reliable clinical signs to enable the identification of wakefulness⁵. Studies conducted by Wang and Russell¹⁹⁻²⁴ have made use of the isolated forearm technique to determine levels of consciousness during GA, which allows communication despite the muscle paralysis. Often patients will demonstrate high levels of intra-operative consciousness but without post-operative conscious recall^{15,19}. This is because many anaesthetic drugs impair the encoding phase of memory, *not* that the wakefulness never happened as some like to imagine. It is likely that previous studies demonstrating intra-operative implicit (unconscious) learning¹²⁻¹⁴ have involved learning episodes during such states. Wang and colleagues³² have also investigated benzodiazepine sedation as another clinical circumstance in which there may be dissociation between implicit (unconscious) and explicit (conscious) recall. There is an intriguing literature in which patients have developed psychological disturbance following operations with GA in which the patient has no conscious recall, but the nature of the disturbance is indicative of inadequate anaesthesia⁶⁻¹¹. Experimental studies that attempt to investigate the mechanisms by which this may occur are reviewed.

- Whilst awareness without paralysis is almost as prevalent as awareness with paralysis, it is the latter that tends to result in post-operative psychological problems
- Intra-operative confusion and distress due to unanticipated paralysis is crucial in the aetiology of post-operative psychological difficulties
- The IFT has a crucial role in psychological prophylaxis since wakeful patients are reassured intraoperatively – it is not “too late”
- There needs to be a debate about routinely informing surgical patients about the use and effects of muscle relaxants pre-operatively.

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