Drugs 2000 Feb; 59 (2): 269-270
0012-6667/00/0002-0269/$25.00/0

Dexmedetomidine

A Viewpoint by Professor Mervyn Maze

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Dexmedetomidine is a potent and highly selective α_2-adrenoceptor agonist with sedative/hypnotic, analgesic, anxiolytic and sympatholytic effects. The amalgamation of such effects suggests that dexmedetomidine may allow intensive care patients to remain comfortable, calm and cooperative in the intrinsically stressful environment of the intensive care unit (ICU).

Dexmedetomidine has unique sedative properties. Patients given dexmedetomidine were clinically sedated despite the surrounding noxious stimuli, but could also be roused without agitation or anxiety when stimulated and returned to their sleep-like state when left alone. This effect offers considerable advantages over currently used agents that often leave patients nonresponsive or semi-anaesthetised.

In addition to providing sedation with rousability, dexmedetomidine also provides analgesia. No other agent in the current therapeutic armamentarium can provide all these effects.

Cardiovascular adverse events are predictable based on the known pharmacological effects of the drug. Bradycardia and reduction of sympathoadrenergic hypertension are its most prominent adverse effects. However, these are desired effects in most postsurgical intensive care patients because tachycardia and hypertension can cause severe problems during the period of weaning from the respirator and during transition to the awake state.

Dexmedetomidine does not cause clinically relevant respiratory depression, unlike other available agents (e.g. propofol, benzodiazepines and opioids). Moreover, dexmedetomidine does not need to be weaned prior to extubation to protect against depression of basal respiratory rates. Infusion can continue through mechanical ventilation, during extubation and the postextubation period. This allows greater flexibility for the timing of extubation as well as allowing patients to be calm, comfortable and pain free during the process.

Dexmedetomidine represents a significant advance in the management of intensive care patients. It will provide clinicians with an important alternative agent for sedation and analgesia while supporting their patients in the intensive care setting. ▲