Alpha-2 agonists for sedation of mechanically ventilated adults in intensive care units: a systematic review

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Plain English summary

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Plain English summary

Sedation involves the use of drugs to produce a state of calm or sleep in patients admitted to intensive care units (ICUs).

The most common drugs used in ICUs fall into three groups: (1) propofol (Diprivan®, AstraZeneca); (2) benzodiazepines [including midazolam (Hypnovel®, Roche) and lorazepam (Ativan®, Pfizer)]; and (3) alpha-2 adrenergic receptor agonists [including clonidine (Catapres®, Boehringer Ingelheim) and dexmedetomidine (Dexdor®, Orion Corporation)]. The effects of sedation vary between drugs and none has been shown to be clearly better than the others. The drugs called alpha-2 agonists (clonidine and dexmedetomidine) appear to be different in that patients can be awakened more easily, are better able to communicate and do not suffer from breathing problems which can occur with other drugs.

We looked at all clinical studies that have been done on these drugs in people admitted to ICUs who required assistance with breathing on a ventilator. We assessed (1) the effects of dexmedetomidine compared with clonidine and (2) the effects of dexmedetomidine compared with propofol and benzodiazepines. Results from 18 clinical studies (2489 patients) showed that, compared with other drugs, dexmedetomidine reduced the length of stay in ICUs and the time until the patient was ready to have the breathing tube removed. More people treated with dexmedetomidine, however, suffered from a slow heart rate. The numbers of deaths and other bad effects were similar regardless of the drug used. Overall, the quality of the clinical studies was low and there were some uncertainties regarding the data used for the analyses. Further clinical studies are needed to evaluate the effects of clonidine and to identify which patients are more likely to benefit from dexmedetomidine.

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