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Title

Perioperative dexmedetomidine and 5-year survival in patients undergoing cardiac surgery.
Reply to Br J Anaesth 2021; 127: e127-8

Permalink

<https://escholarship.org/uc/item/5k2118t3>

Journal

British Journal of Anaesthesia, 127(5)

ISSN

0007-0912

Authors

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Publication Date

2021-11-01

DOI

10.1016/j.bja.2021.07.018

Peer reviewed

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doi: 10.1016/j.bja.2021.08.009

Advance Access Publication Date: 3 September 2021

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Perioperative dexmedetomidine and 5-year survival in patients undergoing cardiac surgery. Reply to *Br J Anaesth* 2021; **127**: e127–8

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Keywords: cardiac surgery; complications; dexmedetomidine; postoperative outcomes; survival

Editor—We thank Hu and colleagues¹ for their interest in our study on the perioperative use of dexmedetomidine in patients undergoing cardiac surgery, in which we showed that dexmedetomidine infusion (initiated from cardiopulmonary bypass until tracheal extubation or 24 h) was associated with reduced death up to 5 yr after cardiac surgery.² We initially found a higher 5-yr survival rate in patients who received dexmedetomidine compared with those who did not in the original unadjusted cohort of 2068 patients. After adjustment for baseline covariates using propensity score matching, inverse probability of treatment weighting, or overlap weighting techniques, this association between dexmedetomidine use and long-term survival remained. In [Figure 1](#), a graphic summary of dexmedetomidine's effect on survival after cardiac surgery is shown for a better demonstration of our study findings.

Hu and colleagues¹ suggest that several contraindications of dexmedetomidine use (including heart rate >120 beats min⁻¹, severe sinus bradycardia, second- or third-degree atrioventricular block, or sick sinus syndrome) should be incorporated into the exclusion criteria of our study. First, there is no absolute contraindication to the use of

dexmedetomidine, but it should be used with caution in patients with bradycardia and hypotension.^{3,4} Second, our inclusion and exclusion criteria were applied during the screening process of electronic medical records and our institutional Society of Thoracic Surgeons (STS) National Adult Cardiac Surgery Database. Third, whether patients received perioperative dexmedetomidine was at the discretion of the attending anaesthesiologists such that we are unable to decide who would receive dexmedetomidine or not.

Their second suggestion is to include details of the diagnosis of heart block after surgery. We did present the definitions of postoperative outcomes in Supplementary Table S1 of our article. Based on the STS national criteria, heart block was defined as new heart block requiring implantation of a permanent pacemaker of any type before hospital discharge.⁵ Thus, only new onset heart block that was treated with permanent pacemaker implantation was recorded. Here, we would like to reiterate that multiple testing was not planned for the secondary outcomes (including the incidence of postoperative complications and utilisation of healthcare resources), so we are not able to draw any definite clinical inference from these secondary outcomes.

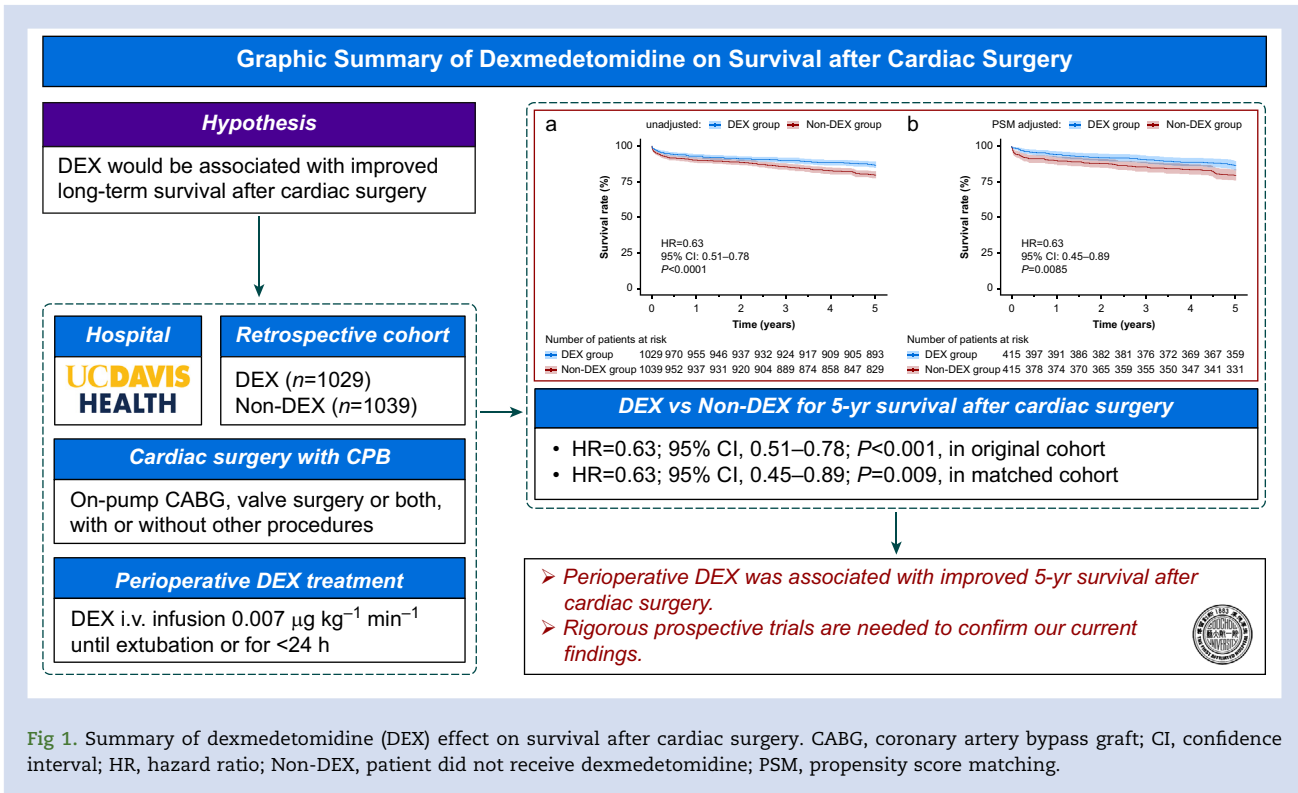


Fig 1. Summary of dexmedetomidine (DEX) effect on survival after cardiac surgery. CABG, coronary artery bypass graft; CI, confidence interval; HR, hazard ratio; Non-DEX, patient did not receive dexmedetomidine; PSM, propensity score matching.

Finally, we agree with the editor's comments regarding our study. Although several statistical adjusting methods have been used to balance the two groups, we should keep in mind that the substantial survival benefit attributable to dexmedetomidine needs to be interpreted cautiously. Therefore, our current findings support future rigorous randomised trials to assess the long-term effects of dexmedetomidine in patients undergoing cardiac surgery.

Declarations of interest

The authors declare that they have no conflicts of interest.

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doi: 10.1016/j.bja.2021.07.018

Advance Access Publication Date: 26 August 2021

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