Reviewer’s report

Title: Usefulness of a stool to stabilize dental chairs for cardiopulmonary resuscitation (CPR)

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Reviewer: Namita Jayaprakash

Reviewer's report:

This is an interesting and innovative article by the authors N. Awata et al. 'Usefulness of a stool to stabilize dental chairs for external chest compression' is a simulation study involving the effectiveness of placing a stool behind eight different types of dental chairs and assessing the vertical displacement during external chest compression. This study is a validation of a recommendation from their previous work to place a stool during CPR when occurring during dental surgical procedures. This is an interesting study in that the authors recognized that despite incorporation into guidelines, the use of a stool for external chest compressions occurring during dental surgery faces a practical challenge in understanding efficacy given the number of brands and styles of chairs. The study results found that placement of the stool decreased the vertical excursion of the chair during external chest compression by different providers of varying statures.

The strengths of this stimulation study are that it evaluates the effectiveness of the stool in all 8 chairs when CPR is conducted by 3 different types of providers, which adds to generalizability. It also helps increase the opportunities for early CPR without delay of movement. This is a simple study which has the most benefit to the dental community where providers may find themselves in the unfortunate predicament of needing to perform CPR. it is not however clear why the patient in the dental chair is different from other scenarios in which the patient may have to be moved. The authors state on page 4, line 32 that it is difficult to move the patient from the dental chair to the floor. It would be useful to elaborate on why this would be different from moving a patient in cardiac arrest in any other sitting position to the floor. What does it take to move a patient from a dental chair to the floor? Is there information on the amount of delay in initiation of CPR with the process of moving the patient?

Additionally, it would be helpful in the methodology to describe if the providers were performing CPR for ten rounds on the manikin on each chair sequentially. If the providers were sequentially performing CPR on the manikin in each of the chairs, how was provider fatigue accounted for?

Additionally:
Page 4, line 14: The sentence "When the relief go wrong..." needs to be rephrased as it is difficult to follow. Would suggest something along the lines of 'When the thrust relief is ineffective, immediate cardiac arrest can occur.'

Page 5, line 35: The word "technic" should be "technique"

Page 6, last sentence: Please revise this sentence as the thought is not being conveyed clearly.
Are the methods appropriate and well described? 
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls? 
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown? 
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Yes

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Not suitable for publication unless extensively edited

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