Chest compression: Not as effective on dental chair as on the floor

Sir,

We read with interest the work of Fujino et al. about the usefulness of a stool for stabilising a dental chair (DC) when CPR is performed. In this work, the authors assume that the DC was stabilized by placing a stool underneath and that this made chest compression more effective. They found that the mean compression depth on the stabilized DC was significantly less than when compressions were performed on the floor (44.9 vs. 49.1 mm). The percentage of correct chest compressions on the stabilized DC was significantly higher (71.0 ± 28.7% on DC vs. 41.0 ± 33.5% on floor). Therefore, we understand that most of the chest compressions performed on floor were incorrect because they exceeded the correct depth range (38–51 mm). In an initial study from the same team, compression depth when undertaken on a DC without a supporting stool was also less than when done on the floor, but the difference was not significant. The authors concluded that chest compressions done in the DC may be as effective as those done on the floor. Those divergent results and their interpretation are questionable. Firstly, we can assume that the first study was not significant because of lack of power with only 10 participants vs. 30 in the second study. Secondly, the two studies are not comparable. In the first one, the mean compression depth on floor was 36.6 mm compared with 49.1 mm in the second study. That clearly demonstrates that in the second study, chest compressions were deeper on floor and on the DC (on floor: 36.6 mm vs. 49.1 mm; DC: 34.8 mm vs. 44.9 mm) mainly because the populations were different (only females in the first study and only males in the second).

We hypothesize that chest compressions may be shallower on a DC regardless of whether it is supported by a stool. In the second study, because of a greater compression depth, the majority of compressions were above the target range. The difference in favour of the DC may not be attributable to the stool, but it may be a chance finding caused by a different study population generating deeper chest compressions. To be sure of a positive effect from the stool, the study should have been designed with rounds of chest compressions on floor, on the DC alone, and on the DC supported by the stool.

We conducted a study with 15 first aid instructors who performed chest compressions on the floor and on a DC without any stool. This work confirmed that compressions performed on the floor are deeper than those performed on a DC (47 ± 6 vs. 43 ± 9 mm, p = 0.02). Nevertheless, we did not find any difference in the percentage of correct compressions (38–51 mm). We believe that compression depth is superior when performed on floor, and therefore not equivalent to compressions performed on a DC. However, we cannot draw a firm conclusion about the efficacy of CPR performed by dentists on a DC. Furthermore, it has been documented that most dentists do not consider themselves competent in performing CPR. Perhaps dentists should practice chest compressions on the floor or on a DC guided by a defibrillator incorporating a feedback device to indicate the appropriate compression depth.

Conflict of interest

None.

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References