

Usage of parallel manipulator for external chest compressions during cardiopulmonary resuscitation - An experimental study on feedback manikin

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ABSTRACT

Uninterrupted chest compressions plays a key role in the survival of the cardiac arrest patient during cardiopulmonary resuscitation. For this purpose, a parallel manipulator operated by the pneumatic air pressure is designed, and the experiments were conducted on the Ambu feedback manikin by varying chest stiffness in the manikin for every bar of the pneumatic air pressure that is kept constant at different pressures ranging from 4 to 7.5 bar. From the experimental investigations, it is found that the obtained results were highly satisfied the standards of American Heart Association. It is observed that, American Heart Association guidelines were met, when the designed unit is operated under a pressure of 6 bar or more for the range of chest stiffness from 6 to 6.5 N/mm.

KEYWORDS:

Cardiopulmonary resuscitation; uninterrupted chest compressions; parallel manipulator; chest stiffness; Ambu feedback manikin. American Heart Association guidelines.