Resuscitation procedures quality on various surfaces encountered in the hospital environment and doctor's offices

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BACKGROUND

There is certain risk of a cardiac arrest, among patients seeking help in hospitals and outpatient clinics. Underlying causes of cardiac arrest are more common in this settings, than observed in standard population. Resuscitation must be performed immediately on the surface available.

Differences in the quality of CPR performing on different surfaces may influence the results of CPR.

OBJECTIVES

Aim of the study was to compare CPR parameters and the quality of resuscitation procedures simulated on various surfaces, which are likely to be find in medical environment.

METHODS

Laerdal "Little Anne QCPR" mannequin with computer-based measurement module of qualitative - quantitative resuscitation procedures was used. A standardized team of trained rescuers performer simulations of 8 – minutes periods of resuscitation. Several surfaces possible to meet in the medical wards (floor, ICU hospital bed, hospital ward bed), wairing rooms (spring couch, soft mattress) and in transportation (transport stretcher) and others (inflatable mattress) were included for trials, The resuscitation pattern and the range of valid values were in accordance with the ERC guidelines 2015. The statistical analysis was performed using the paired *t* test in „Statistica” program (version 13.1). P values < 0,05 were considered as statistically significant results.

- Floor
- ICU hospital bed
- Hospital ward bed
- Spring couch
- Spring couch „standing”
- Soft mattress
- Inflatable mattress
- Transport stretcher

CONCLUSIONS

The surface on which CPR is performed has an impact on the quality of chest compressions. Hard and resilient surfaces let achieve best quality of chest compressions. Soft surfaces deteriorate the quality of chest compressions.

The transfer of the victim, who sustained CRP on a soft surface, to a harder one, may improve the quality of chest compressions.

It seems reasonable to conduct further research on the quality of resuscitation procedures performed on resilient surfaces due to the promising results obtained.

RESULTS

Surface	Average Compression Score	P =	Average Total CPR Score	P =
Floor	97,7 %	> 0,05	97,3 %	> 0,05
ICU hospital bed	98,3 %	> 0,05	97,7 %	> 0,05
Hospital ward bed	97,5 %	> 0,05	96,0 %	> 0,05
Spring couch	97,0 %	> 0,05	97,7 %	> 0,05
Spring couch standing	94,0 %	> 0,05	95,0 %	> 0,05
Soft mattress	82,7 %	< 0,05	86,7 %	< 0,05
Inflatable mattress	62,8 %	< 0,05	71,7 %	< 0,05
Transport stretcher	93,7 %	> 0,05	95,0 %	> 0,05