A27 - New protocol for start of chest compressions before definitive cardiac arrest improved survival from out-of-hospital cardiac arrest witnessed by emergency medical service

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Introduction:
Healthcare providers including emergency medical service (EMS) personnel usually confirm absence of carotid pulse before starting chest compressions. At the end of 2011, Ishikawa Medical Control Council implemented new criteria for start of chest compressions encouraging EMS to start chest compressions when carotid pulse was weak and/or <50/min in comatose adult patient with respiratory arrest or agonal breathing.

Methods:
Data were prospectively collected for out-of-hospital cardiac and respiratory arrests during the period of 2008–2015. Definitive cardiac arrest was recorded when loss of carotid pulse was confirmed by pulse checks performed every 2 min after the early start of chest compressions. The effect of early chest compressions on the proportions of definitive cardiac arrest was analysed in 243 cases with respiratory arrest and circulatory depression in initial patient evaluation. Before/after comparison of neurologically favourable 1-Y survival was performed in 619 cases with EMS-witnessed OHCA.

Results:
The early start of chest compressions did not significantly prevent definitive cardiac arrest that followed respiratory arrest with circulatory depression in the initial patient evaluation (Fig. 1). Time interval between start of chest compressions and definitive cardiac arrest confirmation (median; IQR) was 2; 1.5-3 min. The survival rate of all EMS-witnessed OHCAs after the implementation of new criteria was significantly higher than that before the implementation: adjusted OR; 95% CI, 1.86; 1.02-3.40 (Fig.2). No complications related to early chest compressions were reported during the study period.

Conclusion:
Start of chest compressions before definitive cardiac arrest improved survival from out-of-hospital cardiac arrest witnessed by emergency medical service. Healthcare providers including EMS personnel should be encouraged to provide chest compressions on cases with respiratory arrest and severe cardiovascular depression.

Image 1:
The effect of early (≤2 min) CCs on the proportions of definitive cardiac arrest that followed respiratory arrest and circulatory depression in initial patient evaluation

**Image 2:**

**Trend in neurologically favourable 1-Y survival**