Impact of early terminated resuscitation attempts to the in-hospital cardiac arrest outcome calculations

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PURPOSE OF THE STUDY: Many in-hospital resuscitation attempts are assessed futile and terminated early on. We hypothesized that if these cases are reported separately, the true outcome of in-hospital cardiac arrest (IHCA) is better reflected.

MATERIALS AND METHODS: We conducted a three-year prospective observational Utstein-style study in Tampere University Hospital, Finland. All adult IHCAs outside critical care areas attended by hospital's rapid response team were included. Resuscitation attempts that were terminated within 10 minutes were considered early terminations.

RESULTS: Two hundred patients suffered an IHCA and resuscitation was attempted (71% male, age median 71 (63, 80 years), 83% witnessed arrest, 17% shockable primary rhythm). Twenty-seven (14%) resuscitation attempts were terminated early on with median total resuscitation duration of 5 (4, 7) minutes. These cases and the 173 patients with normal ERC 2010 guidelines resuscitation protocol were of comparable age, sex and Charlson comorbidity index. Dementia was more common among the patients with early termination of resuscitation (19% vs. 7%, $p=0.045$), and their IHCAs were more often unwitnessed (63% vs. 10%, $p<0.001$) with non-shockable primary rhythm (100% vs. 80%, $p=0.011$) as compared with the according-to-protocol resuscitations. The 30- and 180-day survival rates were 31% and 27% for the whole cohort, and 35% and 31% if the 173 IHCAs with normal ERC 2010 guidelines resuscitation protocol were assessed separately.

Documented contributing reasons for early termination of resuscitation	Number
Unwitnessed arrest and/or primary rhythm asystole	18
Severe acute illness	12
Severe cumulative comorbidity	8
Advanced single chronic disease	5
Advanced age	5
Advanced dementia	2
Massive aspiration	2
Preceding limitations of medical treatment	2
Advanced malignancy	1

CONCLUSIONS: Fourteen percent of the IHCA resuscitation attempts were assessed futile and terminated early on. Short- and long-term outcomes were four percent better when these cases were excluded from the outcome analyses.