Duration of resuscitation efforts and survival after out-of-hospital cardiac arrest: an observational study

Background and Purpose

- The decision regarding **when to stop resuscitation efforts** for patients with out-of-hospital cardiac arrest is one of the biggest challenges for emergency medical services (EMS) personnel or clinicians.
- Moreover, the appropriate duration of cardiopulmonary resuscitation (CPR) remains unclear.
- Clinicians have also raised concerns that prolonged resuscitation efforts might actually be futile.
- In this study, we investigated **how long CPR should be conducted to achieve maximum survival and favourable neurological outcome.**

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DECLARATION OF INTEREST

- I have nothing to declare

Methods and Results

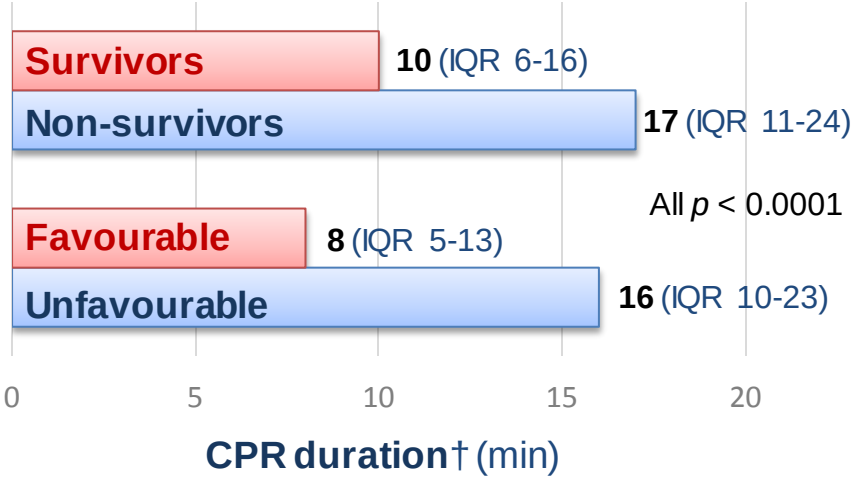
Methods

- **2-year-long, nationwide, population-based observational** study conducted in Japan (2011-2012)
  N = 17,238 adults who experienced a prehospital return of spontaneous circulation (ROSC) after EMS-treated out-of-hospital cardiac arrest
- **Endpoints:** 1-month survival and 1-month favourable neurological outcomes

Results

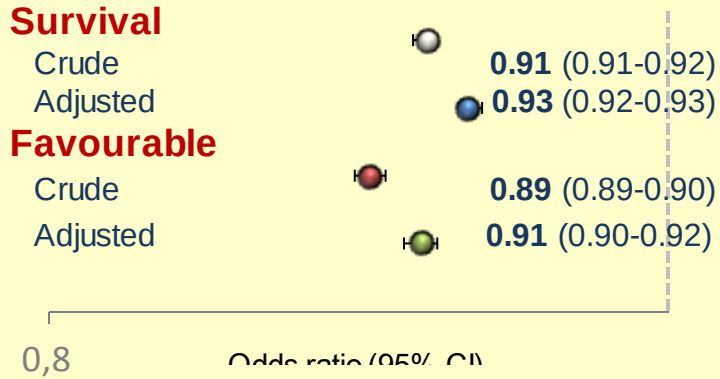
- **1-month survival rate** **36.8%** (6,347/17,238)
- **1-minth favourable neurological outcomes rate** **21.8%** (3,771/17,238)

Figure 1. CPR duration* and outcomes



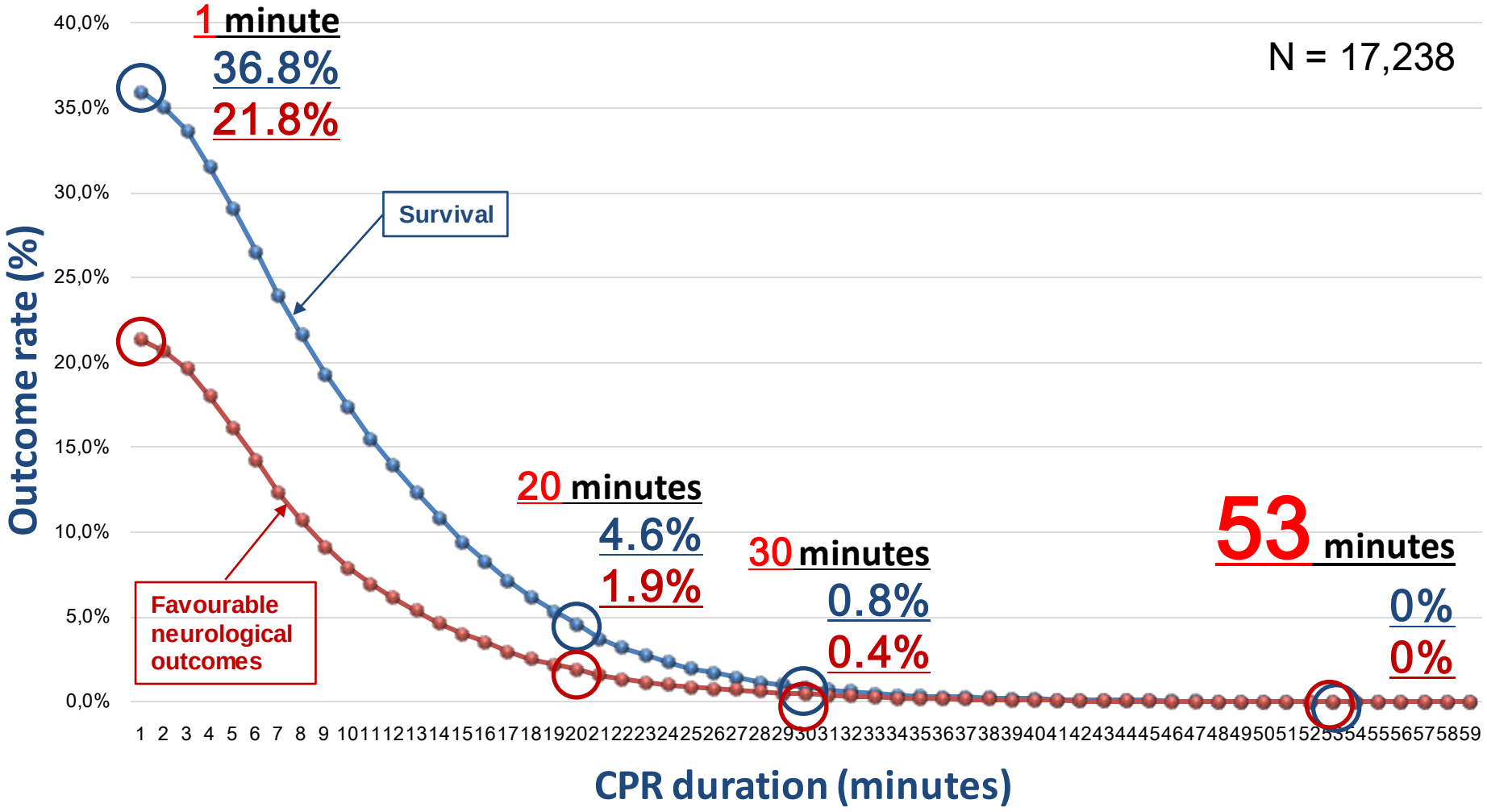
†Time from the initiation of CPR by EMS personnel to pre-hospital ROSC

Figure 2. Odds ratios of CPR duration*

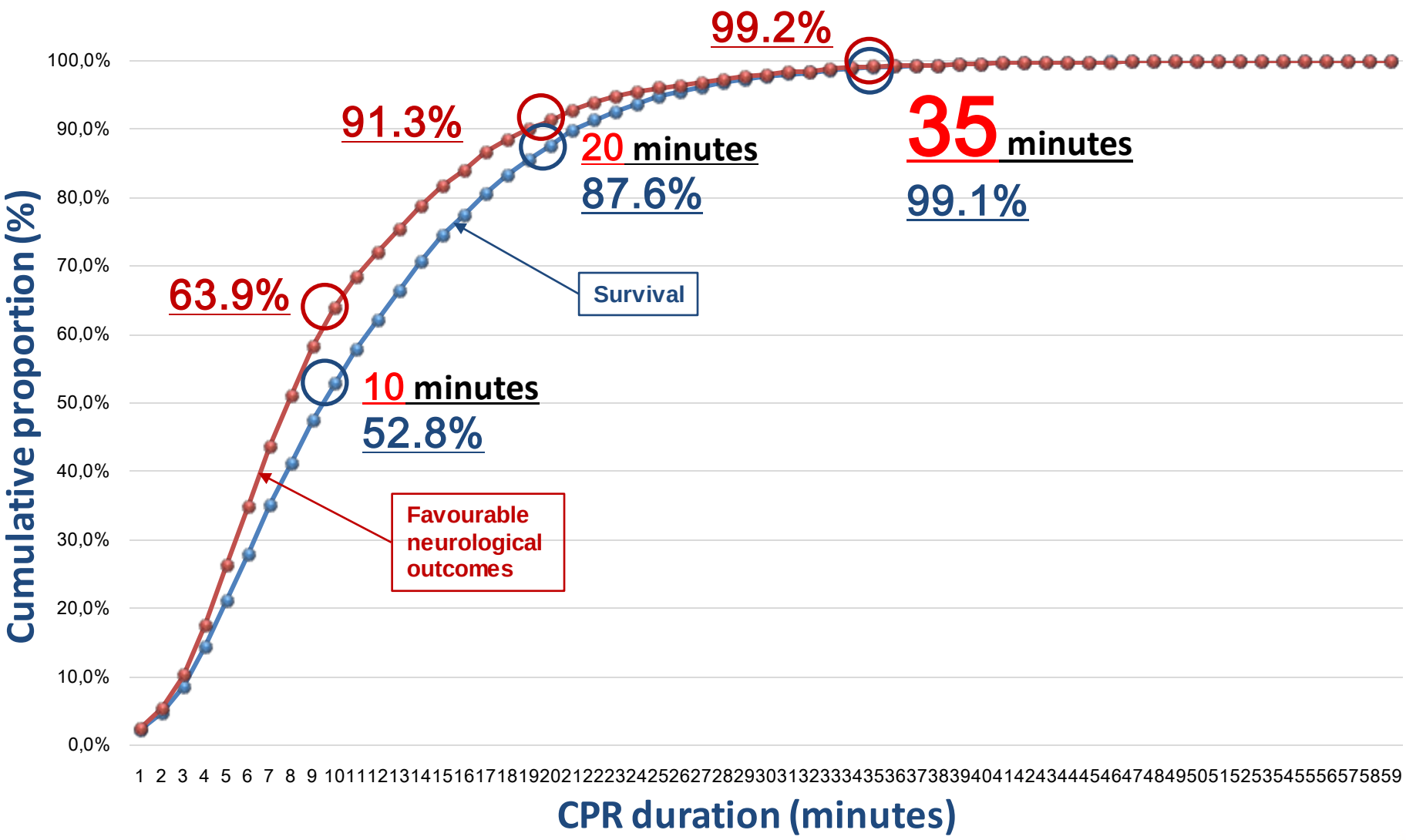


*for 1-unit increment

Dynamic probability of 1-month survival and 1-month favourable neurological outcomes



Cumulative proportion of survivors and survivors with favourable neurological outcomes 1 month after cardiac arrest



Conclusion

- The likelihood of survival with a favourable neurological outcome declines with every 1-minute increase in CPR time after out-of-hospital cardiac arrest.

CPR duration is a crucial factor in determining whether a patient will return to a normal life.

- To achieve maximum survival and favourable neurological outcome, EMS personnel should administer at least **35 minutes** pre-hospital CPR for patients with out-of-hospital cardiac arrest.

If EMS personnel stop CPR after 35 minutes, they have done everything they can do for a patient.