

## **Abstract:**

**PURPOSE:** To compare the effectiveness of the intravenous (IV) and intraosseous (IO) routes for drug administration in adults with a cardiac arrest enrolled in the Pre-Hospital Assessment of the Role of Adrenaline: Measuring the Effectiveness of Drug Administration in Cardiac Arrest (PARAMEDIC2) randomised, controlled trial.

**METHODS:** Patients were recruited from five National Health Service Ambulance Services in England and Wales from December 2014 through October 2017. Patients with an out-of-hospital cardiac arrest who were unresponsive to initial resuscitation attempts were randomly assigned to 1 mg adrenaline or matching placebo. Intravascular access was established as soon as possible, and IO access was considered if IV access was not possible after two attempts.

**RESULTS:** Among patients with out-of-hospital cardiac arrest, 3631 received adrenaline and 3686 received placebo. Amongst these, 1116 (30.1%) and 1121 (30.4%) received the study drug via the IO route. The odds ratios were similar in the IV and IO groups for return of spontaneous circulation (ROSC) at hospital handover ; survival to 30 days ; and favourable neurological outcome .

**CONCLUSION:** There was no significant difference in treatment effect (adrenaline versus placebo) on ROSC at hospital handover between drugs administered by the intraosseous route or by the intravenous route. We could not detect any difference in the treatment effect between the IV and IO routes on the longer term outcomes of 30-day survival or favourable neurological outcome at discharge (ISRCTN73485024).

## **Reference:**

Nolan, J.P., Deakin, C.D., Ji, C., Gates, S., Rosser, A., Lall, R. and Perkins, G.D. (2020) Intraosseous versus intravenous administration of adrenaline in patients with out-of-hospital cardiac arrest: a secondary analysis of the PARAMEDIC2 placebo-controlled trial. *Intensive Care Medicine*. January 30th. doi: 10.1007/s00134-019-05920-7. (Epub ahead of print).