

ACTA Project Grant

2010 Round 12

Successful Applicant

Dr Jayant Pratap

Honorary Research Registrar Department of Anaesthesia, Great Ormond Street Hospital

Title

Pilot study of near-infrared reflectance spectroscopy in children's heart surgery

Amount

£8,242

Scientific Abstract

Near-Infrared Reflectance Spectroscopy (NIRS) has been shown to give information about the clinical condition of children during heart surgery that is not provided by current standard monitoring. However, a recent systematic review reported an absence of evidence regarding effects on clinical outcome, but also pointed out that - though costly - NIRS is rapidly becoming standard of care. The proposed randomised controlled trial tests an evidence-based NIRS guidance algorithm to detect and reverse poor tissue perfusion during children's heart surgery. Although a previous similar study was positive in adult practice, there are many relevant differences between heart surgery in adults and in children. For the future we would like to set up a larger study to address clinical outcomes. Long-term neurological follow-up and testing is impractical in children, so we need a better way to measure any benefits of NIRS before we can plan a high-quality definitive study. To this end we will also collect data reflecting organ dysfunction during/after intensive care as potential primary outcome measures. Should NIRS prove not to be beneficial, this will save approximately €200 per patient. If NIRS does reduce complications money may also be saved - analysis from the adult RCT suggested >US\$3700 per patient.