

## Corticosteroids in cardiac surgery – A final answer?

*Diederik van Dijk*

*Department of Anesthesiology and Intensive Care, University Medical Center Utrecht, Utrecht, The Netherlands*

Cardiac surgery is associated with a postoperative systemic inflammatory response syndrome, which may contribute to mortality, myocardial infarction and other major complications. The inflammatory response can be suppressed with high dose corticosteroids, typically an intra-operative intravenous injection of dexamethasone or methylprednisolone. The use of high dose corticosteroids, however, can have a multitude of unwanted side effects including immunosuppression, poor wound healing, inadequate glucose control, fluid retention, hypertension, electrolyte imbalances, higher lactate levels, and gastrointestinal blood loss. These side effects themselves could contribute to the rate of major complications. Although many studies have compared the effects of corticosteroids on intermediate outcomes, appropriately sized studies on important clinical outcomes are lacking. Also, several meta-analyses of the available smaller studies conducted in the past years did not have sufficient statistical power to allow conclusions on effectiveness of corticosteroids in the setting of cardiac surgery. As a result, the use of steroids in heart surgery is highly controversial and varies greatly across the countries where heart surgery is performed.

The Dexamethasone for Cardiac Surgery (DECS) trial is a multicentre randomized clinical trial conducted at 8 Dutch cardiac surgical sites. The study was designed to determine whether the proportion of patients with

one or more major postoperative complications can be reduced by the intra-operative administration of dexamethasone.

From April 2006 to November 2011, 4,500 adult patients undergoing cardiac surgery were randomized to a single intravenous injection of dexamethasone 1 mg/kg, or a single intravenous injection of placebo, immediately after induction of anaesthesia. Patients of at least 18 years of age who were scheduled for any type of cardiac surgical procedure, either elective or urgent, requiring cardiopulmonary bypass were considered eligible. Trial medication (dexamethasone or placebo) was administered by the attending anaesthetist. Patients and treating physicians were blinded for treatment allocation.

The primary outcome measure of the study was a combined endpoint of major complications in the first month after cardiac surgery, i.e. mortality, myocardial infarction, stroke, renal failure or prolonged mechanical ventilation. Secondary endpoints included major complications at 1-year follow-up.

Patient recruitment was completed in November 2011 and the 1-month follow-up of the last participants was completed in January 2012. At the time of the writing of this abstract, the randomization was not yet unblinded. The principal results of the study, including the effect of dexamethasone on the primary endpoint, will be presented during the EACTA meeting in Amsterdam.