Introduction:
We hypothesized that perioperative dexmedetomidine (Dex) is safe and effective in patients undergoing high risk cardiac surgery. The primary purpose was to assess the feasibility, safety and efficacy of Dex compared to placebo. We compared vasopressors, inotropes, pacing and cardiac complications for safety and severe acute kidney injury (AKI), dialysis and death (Major Adverse Kidney Events MAKE) for efficacy.

Methods:
Adults patients undergoing cardiac surgery [combined (valve + Coronary bypass) or complex] or with preoperative glomerular filtration rate (eGFR) < 60 mls/min/1.73m2 were included. Salvage or transplant surgery, dialysis, eGFR < 15 mls/min/1.73m2 and those on extracorporeal support were excluded. Dex (0.7 ug/kg/hr) was started at induction of anaesthesia and continued up to 24 hours after surgery. Equivalent volume of saline was given to control group. Standard intra and post-operative care was provided.

Results:
We randomized 44 patients in the Dex group and 44 in the placebo (Pgp). The mean(SD) age 70.1(11.3) and eGFR 59.6(20.4) in all patients. No significant differences at baseline. in the Dex, 38.7% underwent complex surgery vs 19.7% pts in the Pgp. The mean(SD) bypass time and aortic clamp was comparable 140(62) and 106(49) min. The vasopressor requirements, pacing or cardiac complications at the end of bypass or in the first 24 hours after surgery were comparable. More patients in the Dex received inodilators 22.8% vs 13.6% in Pgp. MAKE occurred in 15.9% of Dex vs 11.4% in the Pgp. Dialysis requirements and 28-day mortality in the Dex group was 6.8% vs 11.4% and of 2.3% vs 9.1% in the Pgp respectively. Severe AKI occurred in 15.9% of Dex vs 11.4% Pgp. The ICU and hospital length of stay and postoperative ventilation time were comparable.

Conclusion:
The use of perioperative Dex in high risk cardiac surgery is safe and well tolerated in the context of a double blind multicentre study. A Definitive trial is needed to investigate the role of Dex in high risk cardiac surgery.