Intraoperative effect of dexmedetomidine infusion during living donor liver transplantation: A randomized control trial.

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BACKGROUND: Dexmedetomidine hydrochloride (Dex) is a useful adjuvant for general anesthesia. The aim was to evaluate the effects of Dex infusion during living donors liver transplantation (LDLT) on the general anesthetic requirements, hemodynamics, oxygen consumption (VO2), and CO2 production (VCO2).

MATERIALS AND METHODS: Forty LDLT recipients were allocated randomly to receive either Dex (0.2-0.7 μg/kg/h) or placebo (control [C]). Patient state index (PSI), SEDLine monitored anesthesia depth (25-50) with desflurane (Des) % and fentanyl altered accordingly. Transesophageal Doppler (TED), invasive mean arterial blood pressure (MAP) and heart rate (HR) were monitoring any Dex side effects and altering infusion rate accordingly; TED was used for fluid optimization. Metabolic gas monitoring (VO2, VCO2) and Des consumption were recorded.

RESULTS: Dex reduced Des and fentanyl consumption versus C (120.0 ± 30.2 vs. 248.0 ± 38.8) ml, (440.0 ± 195.74 vs. 1300.0 ± 32) μg, respectively ($P < 0.01$). Dex was delivered for 11.35 ± 2.45 h with comparable HR, MAP, and TED variables versus C and with similar mean noradrenaline support (5.63 ± 2.44 vs. 5.83 ± 2.57 mg, $P = 0.81$). VO2 was reduced with Dex vs. C during anhepatic, 30 min postreperfusion and end of surgery (193.2 ± 26.78 vs. 239 ± 14.93) (172.1 ± 28.14 vs. 202.7 ± 18.03) and (199.7 ± 26.63 vs. 283.8 ± 14.83) ml/min/m(2) respectively ($P < 0.01$). VCO2 was also reduced with Dex versus C during the same periods (195.2 ± 46.41 vs. 216.7 ± 29.90, $P = 0.09$), (210.6 ± 60.71 vs. 253.9 ± 32.51, $P = 0.01$), and (158.7 ± 49.96 vs. 209.7 ± 16.78, $P < 0.01$), ml/min/m(2) respectively.

CONCLUSION: TED and PSI guided Dex infusion helped to reduce Des and fentanyl consumption as well as VO2 and VCO2 at a lower cost with no adverse effects on hemodynamics.