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Effect of polymorphisms of lanosterol synthase gene on the development of AKI after cardiac surgery

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Background & Aim: Acute kidney injury (AKI) is an important complication of cardiac surgery. Elevated circulating endogenous ouabain (EO), an adrenal stress hormone with haemodynamic and renal effects, has been associated with worse renal outcome after cardiac surgery. Our group has reported how the activity of EO is partly linked to the allelic variants of genes involved in its synthesis (as lanosterol synthase (LSS). The aim of this work is to investigate the relationship between this gene and the development of AKI after cardiac surgery.

Methods: 1100 patients, undergoing elective cardiac surgery at our Hospital, were genotyped. Primary outcome was AKI according to Acute Kidney Injury Network. Secondary outcomes were length of ICU stay and total in-hospital mortality. Total AKI incidence (AKIN stage I or higher) was 22.2%.

Results: No difference in basal EO levels was observed according to LSS allelic variation. Patients carrying the less common variant of the LSS polymorphism had a more severe clinical presentation, expressed as higher EuroSCORE (5.38±5.81 vs. 4.83±3.22 vs. 3.73±1.18; p=0.002). Likewise, according to LSS polymorphisms, AKI incidence was 30.7% vs. 26.0% vs. 17.4% (p=0.001). However, even after adjustment for the main covariates (sex, age, basal eGFR, baseline EF, presence of hypertension or DM, type or difficulty of surgical procedure and pre-operative value of EuroSCORE) LSS was still significant (β 0.71, Exp(B) 2.03 (IC 95% 1.29-3.21); p=0.002.

Conclusion: Patients with at least one mutated gene polymorphism LSS have a greater chance of developing acute kidney injury after cardiac surgery, despite on clinical presentation.

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Effect of tacrolimus in idiopathic membranous nephropathy: A meta-analysis

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Background: The efficacy and safety of immunosuppression for idiopathic membranous nephropathy (IMN) are still controversial. Recent studies showed tacrolimus is effective in the treatment of IMN. To evaluate the efficacy and safety of tacrolimus (TAC) for IMN, we conducted a meta-analysis of published medical literatures.

Methods: Studies addressing the effect of tacrolimus in IMN were searched on PUBMED, EMBASE, The Cochrane Library, and ClinicalTrials.gov (March 2013). Trials comparing tacrolimus with corticosteroid versus control group (cyclophosphamide with corticosteroid) were included. The quality of the studies was assessed using Jadad method. Statistical analyses were performed using Review Manager 5.2 and the results were summarized by calculating the risk ratio (RR) for dichotomous data or the mean difference (MD) for continuous data with 95% confident interval (CI).

Results: A total of four studies (259 patients) were included. It was shown that therapy with tacrolimus plus corticosteroid had a higher complete remission rate compared to therapy with cyclophosplamide plus corticosteroid (RR=1.53, 95% CI: 1.05–2.24, P<0.05) but not significant on total remission, partial remission and adverse effects. Also, no significant alterations were observed in proteinuria and serum albumin level between the two groups. During the entire follow-up period, serum creatinine level remained stable in both groups without ≥50% increase in its level.

Conclusions: TAC is more effective than cyclophosphamide (CTX) by achieving complete remission in patients with IMN. Multi-ethnic RCTs are needed to evaluate its long-term efficacy and safety.

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