Lower platelet count following induction therapy with anti-thymocyte globulin is associated with a lower incidence of cardiac allograft vasculopathy

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Introduction: Immune mediated vascular damage is a major risk for cardiac allograft vasculopathy (CAV). Anti-thymocyte globulin (rATG) provides intense immunosuppression early after HTx. The role of rATG on CAV prevention still remains controversial.[1,2] While lymphopenia reflects the therapeutic effect of rATG, a decrease in platelet count is deemed as an adverse effect. We hypothesize that lower lymphocyte and platelet counts following rATG induction may be associated with less risk for the development of CAV.

Patients and Methods: We performed a retrospective single-centre study in patients transplanted between 2010 and 2017. All pts received rATG induction therapy for 5 days. Absolute lymphocyte count (ALC) and platelet count were assessed on days 0, 7, 14, and 21 following HTx. The primary outcome was the diagnosis of CAV grade ≥1, during 3 years of follow-up.

Results: A total of 133 pts were transplanted in this period. During first three years after HTx 18.8% of pts developed CAV≥1. Those pts had sig nificantly older donors (47 (IQR 40-49) vs 37 (IQR 28-49), p=0.02), higher median platelet count on day 7 (140 x 10^9/L (IQR 103-156 X 10^9/L) vs 105 x 10^9/L (IQR 68-147 x 10^9/L), p=0.04), higher median lymphocyte count on day 14 (335 x 10^9/L (IQR 184-314 x 10^9/L vs 215 x 10^9/L (IQR 105-401 x 10^9/L), p=0.02), higher median leukocyte count on day 21 (810 x 10^3/µL (IQR 600-960 x 10^3/µL) vs 660 x 10^3/µL (IQR 500-794 x 10^3/µL), p=0.03), and higher median platelet count on day 21 post HTx (237 x 10^9/L (IQR 195-278 x 10^9/L) vs 193 x 10^9/L (IQR 148-226 x 10^9/L), p=0.03) than the pts without CAV. Univariate binary logistic regression showed that CAV was associated with older donor age, lymphocyte count ≥200 x 10^9/L on day 7, higher platelet count on day 7 and 21, and higher leukocyte count on day 21. In multivariable binary logistic regression, the adjusted risk of CAV was significantly higher for pts with older donors (p=0.027), and higher platelet count on day 21 (p=0.04).

Conclusion: Lower platelet count after induction with rATG was associated with lower incidence of CAV. Association with lower lymphocyte count in univariate logistic regression did not reach significance in multivariable analysis. The controversial reports on clinical benefit from rATG induction on CAV prevention could be explained by variable platelet response of the recipients to the therapy.

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LITERATURE

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