Edmo Gabriel, J Clin Exp Cardiolog 2014, 5:3
http://dx.doi.org/10.4172/2155-9880.S1.019

OMICS Group Conferences
Accelerating Scientific Discovery

4th International Conference on
Clinical & Experimental Cardiology
April 14-16, 2014 Hilton San Antonio Airport, TX, USA

Experimental model of methacrylate-coated cardiopulmonary bypass circuit: Impact in complement system activation and index of thrombogenicity and platelet aggregation

Edmo Gabriel
Nove de Julho University, Brazil

Objective: Assessing complement system activation and index of thrombogenicity and platelet aggregation between methacrylate-coated cardiopulmonary bypass (CPB) circuit and conventional CPB circuit.

Method: Twenty-six pigs were equally divided into 2 groups- with and without coating. They were placed on CPB for 90 minutes and blood samples were collected in three different time points (T0- right before CPB establishment, T1- 45 minutes,T2-90 minutes) to measure total count of inflammatory cells (leukocytes, neutrophils, lymphocytes and platelets) and serum level of fraction C3 of complement system. Upon completion of 90 minutes CPB, fragments of different compartments of CPB circuit were taken for assessing index of thrombogenicity and platelet aggregation. Student's t-test; Student's t-test for paired samples adjusted with Bonferroni correction; Friedman test; Mann-Whitney test were used, considering level of significance 5%.

Results: There were not differences between both groups regarding total count of leukocytes, neutrophils and lymphocytes; however, there was lower count of platelets at T2 in coated group (p=0,020). Serum level of fraction C3 was lower in coated group at T1 (p=0,020) and T2 (p=0,017). Higher index of thrombogenicity and platelet aggregation was detected in conventional CPB circuit (77% animals within conventional CPB group) than in coated group (46% animals within coated group).

Conclusion: In heart surgery requiring CPB, use of methacrylate-coated CPB circuit may be useful to reduce complement system activation as well as attenuating index of thrombogenicity and platelet aggregation.

Biography

Edmo Atique Gabriel, MD, Ph.D. is a Brazilian cardiovascular surgeon and University Professor, cardiovascular surgery consulting and editor of two textbooks by Springer - "Principles of Pulmonar Protection in Heart Surgery" (2010-2011) and "Inflammatory Response in Cardiovascular Surgery" (in press).

edag@uol.com.br