

POSTER ABSTRACTS

Adult Cardiac Posters – Continued

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Autologous Platelet Gel for the Prevention of Sternal Wound Infection in Diabetic Patients Undergoing Bilateral Thoracic Artery Grafting

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Background: Bilateral internal thoracic artery (BITA) grafts have advantages, particularly in diabetics, but the perceived sternal complication rates have led surgeons to avoid them. Platelet gel (PG) may reduce patient susceptibility to infection through mechanisms related to combination of platelets, growth factors, white blood cell content and expedited wound healing. The aim of this study was to evaluate the validity of intraoperative application of PG for the prevention of wound related complications in insulin dependent diabetes (IDDM) patients.

Methods: Over a three-year period, 419 patients undergoing coronary revascularization were randomly allocated into four groups: Group 1: Patients with BITA grafts (N=97) having PG application (Harvest, USA) intraoperatively; Group 2: Patients with single internal thoracic artery grafts (SITA) having PG application (N=105); Group 3: Patients with BITA grafts who did not receive PG, but otherwise received similar wound care (N=102); Group 4: Patients with SITA grafts having no intervention but otherwise received similar wound care (N=115). The endpoints were the difference in hospital stay and wound related complications within 6 weeks postoperatively. 5 mm-ITTA grafts were also harvested for endothelial and fibroblast cell culture for evaluation of PG on cytotoxicity, mechanisms on wound healing, resistance to infection and resorption-clearance time from the tissue.

Results: There was no significant difference among groups in terms of age, gender, body mass index, comorbidities, NYHA class, respiratory support, reoperation for bleeding and number of distal anastomoses. PG increased cell proliferation, platelet count, beta-thromboglobulin, PDGF-AB levels and phagocytic capacity vs. baseline (p<0.001).

Conclusions: Application of PG in IDDM patients undergoing cardiac surgery seems to confer a level of protection against infection via mechanisms of growth factors and increased phagocytic capacity.

	Group 1 (N=97) (BITA + PG)	Group 2 (N=105) (SITA+PG)	Group 3 (N=102) (BITA)	Group 4 (N=115) (SITA)	p
Superficial Sternal Infection (%)	4.1*	1.9	8.8	4.3	<0.05 vs. Group 3
Deep Sternal Infection (%)	0*	0	2.9	1.7	<0.05 vs. Group 3
Sternal Dehiscence (%)	1*	1	5.8	3.4	<0.05 vs. Group 3
Hospital Stay (days)	7.2±1.3	6.9±1.4	11.3±2	8.1±1.8	NS
Period of treatment (days)	8.3±2.1*	8±2.3y	16.8±4.1	14.2±3.6	*<0.05 vs. Group3 y<0.05 vs. Group4
Mortality (%)	0	0	1.96	0.08	NS

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