

Use of Platelet Gel and Its Effects on Infection in Cardiac Surgery

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Abstract: The use of plasmapheresis in cardiac surgery has failed to show an unequivocal benefit. However, the further processing of plasmapheresed blood to obtain a platelet-rich concentrate, termed platelet gel, may reduce patient susceptibility to infection through poorly understood mechanisms related to a combination of platelets, white blood cell content, and expedited wound healing. The purpose of the study was to retrospectively evaluate the incidence wound infections in patients undergoing cardiac surgery. Platelet gel (PG) patients ($n = 382$) received topical administration of a mixture of platelet concentrated plasma, 10% calcium chloride (5 mL), and bovine thrombin (5000 units). A control group (NoPG, $n = 948$) operated on concurrently with the treatment group did not receive PG, but otherwise received similar wound care. A historical control (HC, $n = 929$) included patients operated on before the availability of PG. After Institutional Review Board approval, 20 factors reported in the literature to predispose individuals for increased

infection were recorded along with infections classified either as superficial or deep sternal according to the Society of Thoracic Surgeon criteria. All data were obtained from our institutional contribution to the Society of Thoracic Surgeon database. All adult (>19 years of age) patients undergoing cardiac surgery at our institution between October 2002 and June 2005 were included in this study ($n = 2259$). The incidence of superficial infection was significantly lower in the PG group (0.3%) compared both with the NoPG (1.8%) and HC (1.5%) groups ($p < .05$). There was a similar relationship found when comparing deep sternal wound infections (PG, 0.0% vs. NoPG, 1.5%; $p < .029$ and PG vs. HC, 1.7%; $p < .01$). In conclusion, the application of PG in patients undergoing cardiac surgery seems to confer a level of protection against infection, although the mechanisms of action remain to be elucidated. **Keywords:** platelet gel, cardiac surgery, infection. *JECT. 2005;37:381-386*
