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Intraoperative Transfusion Conservation Techniques in Major Aortic Surgery

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A total of 30 million blood components are transfused annually in The United States. Cardiovascular surgery often requires more blood transfusions to correct postoperative coagulopathy. Traditional therapy mainly depends on blood and blood product transfusion, such as red blood cells, fresh frozen plasma, platelets, and cryoprecipitate, combined with blood conservation techniques (cell saver and pharmacologic agents). Unfortunately, transfusion therapy is associated with significant morbidity, mortality, and including increased blood product usage. Therefore, it is important to develop an effective, safe, and economic process to better utilize our blood product resources leading to improved outcomes. For the past 10 years, modified autologous platelet rich plasma (aPRP) technique is used as one of the blood conservation techniques to reduce blood transfusion in aortic surgery in our center. The clinical observations and retrospective study support utilization of a PRP in Aortic Surgery as an effective, safe, and simple process. It results in reduced blood product utilization, shortened length of stay in the ICU, and decreased mortality, morbidity, and time needed on mechanical ventilation. These factors lower the overall heath cost. aPRP as one of effective the blood conservation techniques in cardiovascular surgery.

The intra-operative aPRP technique can preserve the patient's own platelets and coagulation factors prior to Cardiopulmonary Bypass and hypothermia without additional cost and prolonged operation time. Autologous PRP " avoids " platelet and coagulation factors exposure to the CPB circuit and hypothermia, decreasing risk of platelet and dysfunction. Transfusion patient own aPRP, maintaining normal platelet and coagulation factor function, after cardiopulmonary bypass will restore normal hemostasis or facilitating hemostasis, preserves serum volume, and ultimately maintains tissue microcirculation and endothelial integrity so that aPRP reduces risk of coagulopathy, blood transfusion, saves our limited blood donor resources and health care costs, decreases complications associated with blood transfusions, improves clinical outcome. Furthermore, elucidating this information may also benefit non-cardiac surgeries with coagulopathy.

Biography

Shao Feng Zhou has full training in both department of medicine and cardiovascular anesthesiology. I am working at Memorial Hermann Hospital and UT medical school at Houston, Texas medical center as cardiovascular thoracic anesthesiologist since 2003, for past 9 years, I am trained residents and CV fellows in clinical activities as well as clinical research in cardiovascular specialty. Since 2008, I am working on several research projects as Principal Investigator (PI) for blood conservation techniques in cardiovascular surgery with Grant award and publications.

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