

# Current techniques to reduce blood loss after the ross procedure.

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## Abstract:

Background and aims of the study: Although pulmonary autograft (PA) offers many theoretical advantages, the operation is more complex and the need for extensive reconstruction carries an increased risk for postoperative bleeding. The study aim was to evaluate the impact of different pharmacological and surgical strategies on total blood loss and blood product requirements after PA use. Methods: Between July 1994 and March 1997, 26 patients (22 males) with a mean age of 26  $\pm$  8 years (range: 11 to 36 years) underwent aortic valve replacement with PA (22 root; four subcoronary implant). A relatively high incidence of re-exploration for bleeding ( $n = 3$ ) and significant total blood loss during our early experience (Group I,  $n = 8$ ), prompted the subsequent introduction of different strategies (Group II,  $n = 18$ ). These included perioperative use of aprotinin, reinforcement of suture lines of the neo-aortic root with autologous pericardium and accurate hemostasis of the raw surface on the back of the right ventricular outflow tract (RVOT) during a brief period of circulatory arrest, also with application of fibrin glue. Results: There were no hospital deaths. No patients in group II required re-exploration or transfusion, and mean total postoperative blood loss was reduced (group I,  $720 \pm 465$  ml/m<sup>2</sup> body surface area (BSA), versus group II,  $323 \pm 84$  ml/m<sup>2</sup> BSA). By-pass and aortic cross-clamp times were not significantly longer in group II patients. At a mean follow up of 15 months, all 25 survivors are asymptomatic, in NYHA functional class I, and with normal social interactions. Conclusions: Early survival after aortic valve replacement with the PA appears comparable with the use of more conventional valve substitutes. Blood loss containment by routine application of medical and surgical strategies appears feasible. In view of the common concern about blood transfusion, particularly in

young patients, these findings may help to widen the range of indications for the Ross procedure.