

## **AACP 2019 Paper Presentation**

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### RETROGRADE AUTOLOGOUS PRIMING TO REDUCE ALLOGENEIC BLOOD TRANSFUSION REQUIREMENTS: A SYSTEMATIC REVIEW

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Blood transfusion is considered a common procedure in cardiac surgical procedures. With increasing insights in the potential pathologic effects as well as the associated costs of allogeneic blood transfusion, efforts have been made to minimize the use of packed red blood cell (PRBC) transfusions. One method concerns the priming technique of the cardiopulmonary bypass (CPB) circuit. Using part of the patients' own blood, the total priming volume of the circuit is diminished, leading to a lesser degree of hemodilution and thereby potentially decreasing the need for blood transfusions.

This systematic literature review aims to summarize the evidence of the efficacy of retrograde autologous priming (RAP) in terms of decreasing perioperative PRBC requirements in adult patients undergoing cardiac surgery with CPB.

Two researchers independently searched the PubMed database. The modified Cochrane collaboration Risk of Bias Tool was used to assess bias in observational studies, while the Research Triangle Institute Item Bank was used to assess randomized trials.

A total of nine studies were included of which two randomized trials and seven observational studies. Six studies, including one randomized study, report a significant decrease of PRBC transfusions in patients undergoing RAP compared to conventional CPB. Overall, the average proportion of patients receiving at least one PRBC transfusion was 30±19% in the RAP group and 52±30% in the conventional CPB group ( $P \leq 0.041$ ). The mean number of PRBC transfusions in the RAP group was found to be 5±7 units, while in the conventional CPB group patients received 10±10 units ( $P \leq 0.041$ ).

Although the majority of studies reported a significant decrease of PRBC transfusions in the RAP group, more prospective randomized trials are necessary to increase the level of evidence to justify the inclusion of RAP in standard clinical practice.