

EFFICACY OF PERFLUOROCARBON EMULSION DURING ACUTE NORMOVOLEMIC HEMODILUTION IN CARDIAC SURGERY

A. Chavez-Negrete, R. Verdin-Vazquez, R. Ferrera-Ferr, M. Rojas, J. Barroso-Aranda and F. Contreras

Specialties Hospital, Medical Center La Raza, Social Security Institute. Mexico City.

More than 800 cardiac surgery procedures done each year in the Cardiothoracic Surgery Department, Medical Center La Raza, are major consumers of blood bank sources, despite consensus guidelines for transfusion therapy. Although reasonable blood transfusion is necessary to maintain adequate oxygen delivery and hemostasis in cardiac surgery there are major disadvantages including cost and transfusion related complications.

OBJECTIVE

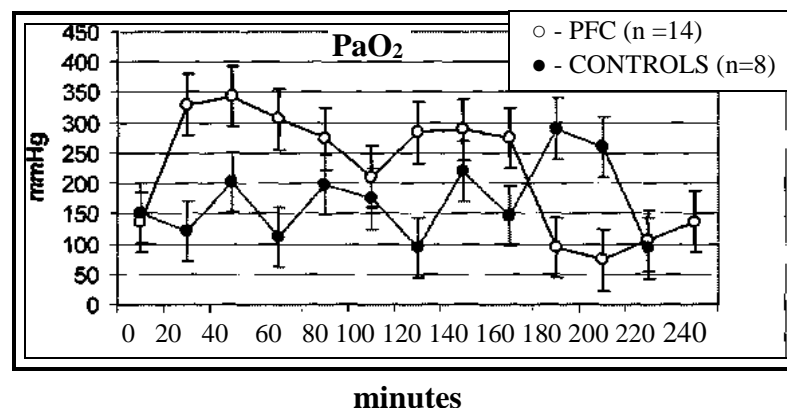
The objectives of this study were to assess tolerance and preliminary efficacy of a perfluorocarbon emulsion (Perftoran) as an oxygen carrier used with acute normovolemic hemodilution (ANH) to reduce allogenic blood transfusion for patients undergoing cardiac surgery.

METHODS

This phase II randomized comparative trial was carried out at Cardiothoracic Surgery Department, after obtaining Institutional ethical review board approval, 23 patients aged 38-56 years undergoing elective cardiac surgery due to rheumatic valvular disease under hypothermic cardiopulmonary bypass (CPB) were enrolled and randomized to either ANH alone (control group, n=8) or ANH and Perftoran (PFC group, n=15). Perftoran was administered at 5ml/kg equivalent to 1 g/kg of perfluorocarbons. After ANH a first set of hemodynamic, hematologic and oxygenation measurements were performed at an FiO_2 of 100 %, every 20 minutes during the surgery (110 ± 20 minutes) and analyzed immediate post-operative period until 48 hours after.

RESULTS

Demographic characteristics and pre-CPB laboratory parameters were not different between groups. One patient with moderated allergy reaction (urticary) in the PFC group was present and improved with antihistaminics. The primary efficacy endpoint of PFC was statistically significant in PaO_2 ($p < 0.05$); the hemodynamic, hematologic, and the other oxygenation parameters were no significant between groups.



CONCLUSIONS

The tolerance of the PFC group was good and the primary efficacy was demonstrated in hyperoxygenation during the surgery period.