Transfusion. 1999 Feb;39(2):144-8.

Preparation of autologous platelets for the ophthalmologic treatment of macular holes.

Gehring S, **Hoerauf H**, **Laqua H**, **Kirchner H**, **Kluter H**.

Institute of Immunology and Transfusion Medicine and the Department of Ophthalmology, University of Lubeck School of Medicine, Germany.

BACKGROUND: Platelet concentrates were recently used for ophthalmologic treatment of macular holes. This strategy was investigated to define standardized blood bank components. STUDY DESIGN AND METHODS: Two different, highly concentrated autologous platelet components, one from whole-blood preparation and the other from plateletpheresis, were evaluated. In the first procedure, platelet-rich plasma was obtained from 250 mL of whole blood. After storage for 20 hours, platelet-rich plasma was concentrated in a second centrifugation step and adjusted to 10 x 10(9) platelets per mL. In the second procedure, platelets were collected by apheresis, stored overnight, centrifuged, and adjusted to 20 x 10(9) platelets per mL. The respective component was instilled during vitrectomy and gas tamponade in patients with stage II to IV macular holes. Patients were followed for 9 months. RESULTS: With regard to the various preparation procedures and final concentrations of platelets in the components, no differences in wound healing were observed. An anatomic closure of the macular hole was achieved in 18 of 19 treated patients. Visual acuity improved in 14 patients. CONCLUSION: Both types of highly concentrated platelet components were effective in achieving high closure rates of macular holes.These autologous platelet components possess the quality standard of blood bank components and could be of great benefit for initiating wound healing in other clinical settings.