

4PS-22-03

BOVINE HEMOGLOBIN (HEMOPURE): CLINICAL USE IN SOUTH AFRICA

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Hemopure® [hemoglobin glutamer - 250 (bovine)], also known as HBOC-201, is a cell-free, polymerized hemoglobin solution that is registered in South Africa for the treatment of adult surgical anemia. This report details 336 patients who received this drug for the treatment of acute perioperative anemia including a subset of 17 patients who received the product to improve tissue oxygenation in the management of acute tissue hypoxia.

Clinical Setting: Hemopure was administered perioperatively to patients from different surgical disciplines for the treatment of surgical anemia when blood was not an option, when blood avoidance was indicated, or due to patient or physician preference. Drug infusion was commenced when the treating physician decided a red cell transfusion was required. In 36 patients no alternative was available to treat the anemia (29 Jehovah's Witnesses, 2 acute haemolytic anemia, and 5 alloimmunisation). Recently, treating physicians have administered this product to 17 patients for the treatment of ischemic colitis (4), ischemic small bowel (4), acute limb ischemia (5) and coronary ischemia (4).

Results: Hemopure adequately oxygenated and stabilised all patients as demonstrated by clinical behaviour and vital parameters. In no case was blood required due to inadequate initial clinical response. After the first infusion, plasma hemoglobin increased to a mean value of 0.8 g/dl and to 1.2 g/dl after the second infusion. Serious adverse events were rare in uncomplicated patients. No product-related deaths, myocardial infarction, stroke or pancreatitis occurred. Four cases of renal dysfunction were evaluated as not being product-related. No allergic reactions were encountered. Minor elevation of systolic pressure was not uncommon. A blood avoidance rate of 89% was observed. Patients treated for ischemic enteropathy, acute coronary ischemia and limb ischemia demonstrated prompt and dramatic clinical improvement.

Conclusion: Hemopure has been used effectively and safely in surgical patients as a replacement for red cell transfusion when blood was either not an option or not desired, and as a drug to treat tissue ischemia. The polymerised hemoglobin permits oxygen delivery to the microcirculation at very low perfusion pressures, offering a new therapeutic approach to managing tissue ischemia.