CASE REPORT

Redo Triple Coronary Artery Bypass Graft on a Jehovah's Witness Patient

A "Tailored" Approach

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INTRODUCTION

Jehovah's Witnesses are considered unusual patients because of their refusal to receive blood transfusions. Some practitioners do not consider the increased risk of death associated with refusal of blood transfusions as a sufficient deterrent. This religious conviction raises problems in the field of ethics and legal and medical management of patients for major surgical procedures in which the use of blood transfusions is an important element.

Keywords: Blood transfusions, coronary artery bypass graft, Jehovah's Witness, Trinidad and Tobago

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CASE REPORT

In July 2013, a 66-year old woman, Jehovah's Witness, diabetic Type 2 and hypertensive with a history of triple coronary artery bypass graft (CABG) surgery in 2007 was submitted to a redo CABG for failure of all previous grafts. She had a myocardial infarct in April 2013 and had post myocardial infarction angina on exertion (CCS 2). The preoperative ejection fraction was 53%. The preoperative haemoglobin (Hb) was 14.1 g/dL. After freeing the heart from epicardial and pericardial adhesions due to previous surgery, a triple venous CABG was performed on-pump: on left anterior descending (LAD) artery, postero-lateral (PL) artery and posterior descending (PD) artery. At the end of the operation, the Hb value was 10.7 g/dL. The postoperative bleeding at the drain removal was 230 ml. The patient was discharged home on the seventh postoperative day with no complications. The Hb value was 9.5 g/dL. At present, she is alive, well and asymptomatic.

DISCUSSION

According to the latest demographic statements, in August 2012 Jehovah's Witnesses are estimated to have an average membership of approximately 7.53 million (1) actively involved in preaching in over 230 countries (2). This number likely underestimates the actual religious affiliation, as the worldwide attendance at the 2012 celebration of the Memorial, which includes Jehovah's Witnesses and their children, was 19 013 343 (1).

The Jehovah's Witnesses are well known in the medical arena for their resolute refusal of blood transfusion. This prohibition was established in 1945, based on literal interpretation of Biblical passages. Currently, this choice is formally left to the discretion of the patient and is in fact an act of voluntarily giving up of their faith and consequent social isolation. Most practitioners do not consider the risk of death associated with rejection of blood transfusions as a sufficient deterrent, since one of the basic elements of this belief is that membership of the Witnesses' religion is the only way to eternal life (3).

It is estimated that about 1000 Jehovah's Witnesses die every year for refusing a blood transfusion (4). In spite of this personal choice, it is the duty of the physician to accurately inform the patient about the risks associated with this rejection and investigate if the patient is willing to accept blood fractions such as albumin or coagulation factor concentrates in case of need.

The rate of blood transfusion is approximately 60% for all the types of cardiac surgery (5). Despite this, cardiac surgery related mortality and complications do not differ significantly between Jehovah's Witnesses and non-Jehovah's Witnesses (6, 7). The apparently contrasting results are due to the rejection by the majority of surgeons to perform surgery on these particular patients. Therefore, these patients are turning to specialists who agree to perform the surgery with a tailored approach. The approach allows the achievement of the best results in terms of risk-benefit ratio for the patient, who sometimes prefers a more conservative approach based on the needs of the case.

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In our centre, we have operated on every case of Jehovah's Witness who was referred to us for cardiac surgery and we have implemented a protocol to ensure the minimum risk of bleeding. This protocol is composed of:

- *Preoperative precautions:* a) establish what products are refused. Some Jehovah's Witnesses accept the use of albumin, immunoglobulin and coagulation factor concentrates (8); b) if necessary, enhance the speed of haemoglobin production using vitamin B12, folate and iron supplements to reach higher preoperative Hb; c) consider the possibility of using erythropoietin to reach higher Hb levels.
- *Intra-operative precautions:* a) use of the cell saver; b) a unit of blood could be collected in the operating theatre from the patient at the beginning of surgery and reinfused when needed. The blood circuitry for these procedures should be continuously kept connected to the patient at all times. This method of blood conservation has been accepted by the Jehovah's Witnesses studied in our series; c) prefer the off-pump to on-pump surgery to avoid coagulation complications related to on-pump technique; d) reduce the operating time with a physiological rather than total anatomical revascularization; e) limit the risk of bleeding by choosing a complete venous revascularization if the patient is more than 75 years old or using the left internal mammary artery only on the left anterior descending artery in younger patients; f) in case of valvular pathology, focus surgery on the critical problem, avoiding further surgery on minor issues; g) use of retrograde priming technique for heart-lung machine.
- *Postoperative precautions:* a) in case of significant postoperative coagulopathy, the sternal closure can be delayed (24 hours), continuing the use of the cell saver; b) avoid excessive volume expansion, due to the associated high risk of haemodilution; c) early decision for re-exploration in case of postoperative bleeding; d) in case of long hospitalization, limit the use of frequent venipuncture for diagnostic tests (abandon routine and use micro-techniques); f) future options: good expectations on oxygen carriers as alternatives to the red blood cell transfusion.

CONCLUSIONS

The Jehovah's Witnesses are considered high-risk patients in cardiac surgery due to the refusal of blood use. However, the modern techniques of blood conservation and tailored approach in the peri-operative period allow similar results to be reached as in the general population. We have described our approach in the management of Jehovah's Witnesses during primary and redo open-heart surgery for which we have had 0% mortality out of a total of 39 patients over the last 15 years.

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