Commentary: Perceval S bioprosthesis valve and platelets: The thrombocytopenia is behind the corner and the mystery continues

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During the last decade, several studies have reported a greater incidence of thrombocytopenia and a slower recovery of the platelet count in the Freedom Solo (FS; LivaNova PLC, London, United Kingdom) compared with other stented bioprosthesis in the early postoperative period. However, this phenomenon is still controversial and is not well correlated with early and late adverse outcome. The Perceval S bioprosthesis valve (LivaNova, London, United Kingdom) may be considered an evolution of the FS and is one of the new-generation sutureless valves on the market. Recent studies have reported the same phenomenon described with FS in the Perceval S bioprosthesis. Unfortunately, these studies analyzed few patients, and the authors could not explain exactly the cause of thrombocytopenia. Several causes of platelet dysfunction were speculated: (1) the detoxification process with homocysteic acid and the storage aldehyde-free solution; (2) the naked alloy stent; and (3) mechanical stress and turbulence, especially in small valve sizes. Furthermore, some authors have compared the Perceval S with a new-generation sutureless rapid deployment valve (INTUITY; Edwards Lifesciences LLC, Irvine, Calif) and again the thrombocytopenia phenomenon appeared in the early postoperative period only in the patients receiving a Perceval S. However, no differences in early outcome were reported in both groups, and the platelet count at 1 year was comparable between the 2 groups.

In this issue of the Journal, Stegmeier and colleagues retrospectively reviewed data on 3 groups of patients operated during 1-year period, ranging from 2009 to 2010: 25 patients with Perceval S, 23 with Labcor (Belo Horizonte, Brazil), and 39 with Hancock II (Medtronic, Minneapolis, Minn) aortic bioprostheses. The early results reported by the authors are in line with the literature: reversible greater thrombocytopenia in patients with a Perceval S valve compared with the other 2 bioprostheses and comparable early outcome among the groups.

At a glance, the Steigmer and colleague’s observations might not seem original and helpful: the authors reported well-known results and the sample size was small. However, some topics deserve to be discussed. The authors did not find any surgeon’s effect on the early outcome. This point has to be highlighted because the surgeon’s effect represents always a deep bias that is often neglected. Another important topic regards the use of the hematocrit-corrected platelet count (PTL count) to reduce the effect of transfusions/hemodilution. The hematocrit-corrected PTL count allows us to better understand any direct correlation between the valve and the severity of thrombocytopenia. Nevertheless, the minimum corrected PTL count was $<70 \times 10^3/\mu L$, suggesting that other factors may affect this transitory phenomenon, such as cardiopulmonary...
bypass, concomitant procedures, hypothermia, postoperative blood loss, and preoperative and postoperative drugs. Worthy of note is the greatest incidence of reoperation for bleeding (20%) and the lowest minimum corrected PTL count (38 ± 10^3/μL) in the Perceval S compared with the other bioprostheses. Due to the small sample size, the authors failed to find any statistical difference among the groups; however, the absence of evidence is not evidence of absence and therefore a correlation between early thrombocytopenia after Perceval S implant and severe bleeding should be speculated. The early thrombocytopenia after Perceval S implant is always behind the corner, and the mystery continues.

**References**


**Commentary: Thrombocytopenia yes… thrombocytopenia no…that is the question**

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Thrombocytopenia after cardiopulmonary bypass is a transient and common event in cardiac surgery, mainly secondary to hemodilution, platelet consumption, and perioperative blood loss. It usually occurs between the second and third postoperative days, resulting in a reduction of platelet counts by 30% to 60% from baseline values. Small retrospective studies have concluded that the...