


Discussion

Dr Song Wan (Sha Tin, Hong Kong). Thank you, Dr Rosengart, for this timely and important study and congratulations for this elegant presentation.

I have just a few short questions for you. The first question relates to the patient factor. Did all patients continue their aspirin before operation and through the operating day? If yes, your observation may not make 100% perfect sense unless you demonstrate that all the patients actually have the similar responsiveness to aspirin among all 3 groups.

And in the meantime, the recently published PARADOX study suggests a nonsmoker had reduced responsiveness to clopidogrel than smokers. So I just wondered, do you have the data about smoking status in all these patients, particularly the high function and the low function groups? Maybe I’d let you answer the first question.

Dr Rosengart. We did continue aspirin up to the time of use, which is part of nearly all guidelines in this regard. There is now apparent consensus that aspirin administration up to the time of surgery does not increase bleeding risks, but withdrawal in terms of ACS syndromes does increase the risk of stent thrombosis, so we continued ASA. We did correct for differences in ASA use amongst groups in our final analysis, however.

There are, as you point out, a number of causes of the variability of clopidogrel response, one being smoking; the most significant cause was genetic heterogeneity in terms of liver metabolism of the clopidogrel prodrug. This variability is, of course, accounted for in our analysis using PRU as our input variable.

Dr Wan. And the second question relates to the preoperative PRU measurement. Were those anesthetists and ICU staff actually aware of the result? If yes, do you confirm actually the decision for FFP and platelet transfusion was not biased by that result?

Dr Rosengart. Yes, that’s an important question. This was retrospective, and in many cases, the surgeon, hopefully in all cases, the surgeon was aware of the PRU response. In our analysis, we consequently tried to capture a potential tradeoff between bleeding and platelet transfusion as a composite adverse outcome index—essentially, you pick your poison. Either you transfuse platelets to minimize the bleeding, or try to avoid the platelet transfusion, in which case you have a high chest tube output. This was the rationale for our looking at a chest tube output, platelet transfusion, in an either/or analysis. In fact, our findings support this as the outcome of operating on low PRU patients—they are either transfused or bleed, or in some cases both. What we found is that you are either giving prophylactic platelet transfusion, which in many cases was our practice, or looking at what the transfusion and bleeding rates were and then correcting post hoc.

Dr Wan. My last question relates to the treatment. Some studies suggested that tranexamic acid use could actually efficiently reduce the bleeding in clopidogrel-treated patients. So did any patients in your study receive tranexamic acid? If yes, what about the duration intraoperatively and how many hours postoperatively?

Dr Rosengart. Nearly all (98%) of our patients received Amicar. We do not use tranexamic acid.

Dr Wan. Thank you. And I thank the Association for the privilege of discussing this paper. Thank you.