



## Invited correspondence on: “Aspirin for patients undergoing major lung resections: hazardous or harmless?”

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Please allow us first to make some comments regarding two important points you raised (1)!

In our study (2) we did not decide which patient should continue or stop taking aspirin:

In the ASA-1 population (n=157) 121 patients used aspirin for secondary and 36 patients for primary prevention whereas 329 patients in the ASA-0 group did not take aspirin at all.

This means, these patients did not belong to the high-risk group with cardiovascular diseases (CVDs) and hence were not advised to take aspirin, so one could speculate that these patients had a lower risk for the incidence of major cardiovascular events. As our study pointed out the population in the ASA-1 group was older and had more comorbidities and as a consequence more complications.

Furthermore, we would like to comment on another point: We did exclude patients taking other antiplatelet agents other than aspirin, as it might have led to biased results. Yet we excluded them from the study, not from surgery. However even they (and this is right now obviously nothing more than an anecdotal report) did fine.

Another aspect mentioned by the authors we may agree with is that aspirin and clopidogrel for thoracoscopic lung surgery may have significantly more postoperative bleeding complications (P=0.005) (3).

Patients being forced to continue taking dual antiplatelet therapy for different reasons [acute coronary syndromes (ACS) within the last 12-month, recent percutaneous coronary

intervention (PCI), transfemoral aortic valve implantation (TAVI) or MitraClip<sup>®</sup>] were excluded, since the risk for cardiovascular complications was considered too high in case the dual therapy would be discontinued.

Patients who interrupted their oral anticoagulation drugs prior to surgery and offered normal blood coagulation results were included in our study.

An interruption of oral anticoagulation therapy more than 5 days prior to an invasive procedure is a key player to for MACE (4).

As the authors often refer to the POISE-2 trial we would like to comment on a few critical aspects with regard to the trial (apart from the comments we have already put in our publication):

Two-thirds of all patients which were assigned to the aspirin group did not meet primary and secondary prevention criteria for aspirin therapy, but were included because of high-risk surgery (5). So one could say that only 23% of subjects had a history of coronary disease, so most patients had been at low risk for thromboembolic complications and hence do not reflect the population of high risk patients (5).

Another point is, that only 4.3% patients with coronary stents, for whom an interruption of aspirin is not advised (4) were included in the POISE-2 trial.

Moreover, primary and secondary prevention group were not distinguished, but took together and randomized. Number need to treat (NNT) for the primary prevention patients taking aspirin to avoid one cardio-vascular event

is 667–1,200 of cases, while the same number of patients needed to treat to avoid a single one CVD event at the secondary prevention group is only 67–218. Therefore the absence of significant cardio-vascular complication and deaths from them in the control group is questionable, as it may be postulated that this group by chance had more patients belonging to the primary prevention group (6).

In summary we can say that patients undergoing major lung resections and taking aspirin do not necessarily have an increased risk of bleeding, but are exposed to a higher risk to operation due their comorbidities.

Aspirin is one of those medicaments, which effects may soon lead to an extension of its indications to the point of becoming one of the most prescribed drugs in the future. There is an increasing body of evidence connecting aspirin with possible cancer prevention (7-9) and even exhibition of certain anti-aging properties (inhibiting the mTOR pathway) (10), accompanying only with the mild side effects.

Nevertheless, we will yet have to see what the future holds. At the moment we believe that by not discontinuation of aspirin prior to surgery we do no harm our patients.

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## Footnote

*Conflicts of Interest:* The authors have no conflicts of interest to declare.

*Ethical Statement:* The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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