Opponent's Review of the PhD Dissertation of Dávid Bauer, MD "Risk stratification of acute coronary syndrome patients after percutaneous coronary intervention"

Summary

Dávid Bauer, MD submits a dissertation entitled *"Risk stratification of acute coronary syndrome patients after percutaneous coronary intervention."* The dissertation comprises 127 pages (including appendices). Sixteen pages are devoted to an overview of the topic, 38 pages to the author's own work; the dissertation includes 136 references and 5 original articles. A list of abbreviations is also provided. The hypotheses and goals are formulated clearly and understandably. The dissertation is supported by 5 full-text publications in impact-factor journals related to the dissertation topic. In 4 of these publications, Dávid Bauer, MD is the first author. The entire dissertation is written in English, in a clear and well-structured manner.

Timeliness of the topic

Clinical research concerning the management of patients with acute coronary syndromes (ACS) remains highly topical. In his work, the author focuses on risk stratification of patients with ACS, including patients with STEMI, non-STEMI, and unstable angina pectoris.

The main objectives of the dissertation were:

1. To evaluate prognostic factors for ACS patients
2. To assess the efficacy of a locally developed protocol for selecting low-risk ACS patients
3. To evaluate mid-term survival in selected low-risk ACS patients after discharge
4. To evaluate the prognostic role of the PRECISE-DAPT score in the ACS population
5. To investigate the prognostic role of chronic total occlusion in patients with MI and multivessel disease (MVD)

Has the dissertation achieved its aims?

The dissertation has met the individual stated and formulated aims. The current state of knowledge as well as the author's own work are written in a high-quality and comprehensive manner.

Methods

A prospective 3-year single centre registry of ACS patients (1420 consecutive ACS patients), its retrospective analysis, and subsequent development of an early discharge protocol (EDP) for low-risk ACS patients.

Retrospective analysis of patients with MVD and the presence of CTO.

Assessment of the prognostic role of the PRECISE-DAPT score in an unselected ACS population.

Results of the dissertation – new findings

1. Based on a retrospective analysis of the 3-year registry of ACS patients, predictors associated with zero 30-day mortality after ACS were identified. The authors subsequently created EDP and implemented it in clinical practice. In the subsequent period, 101 low-risk ACS patients were selected for early discharge and during a 1.9-year follow-up, only 1 death occurred. A comparison of the periods before and after EDP introduction demonstrated a significant reduction in the length and cost of hospital stay.
2. The PRECISE-DAPT score with a cut-off of 25 is well applicable for predicting mid-term survival in ACS patients.
3. The CTO presence in MI patients and MVD does not adversely affect 12-month survival.

Significance for social practice and further scientific development

The author's results are very valuable with respect to the issue addressed, and several can be considered of primary importance. The chosen topic is highly current. The dissertation thus contributes to the expansion of knowledge in this field and provides a basis for broader continued study of the issue. It is very valuable that a number of the dissertation results (especially the development of the early discharge protocol for low-risk ACS patients) are directly applicable in clinical practice.

Comments

1. In the list of the author's high-quality publications related to the dissertation topic, the journals' impact factors are not stated. The author also does not provide an overview of his other publications.

Questions for the author

1. The absence of atrial fibrillation isnot included in the developed early discharge protocol for selection of low-risk ACS patients. Some studies mentioned in the discussion did include this. Please comment.
2. What proportion of ACS patients during the 3-year follow-up underwent catheterization via radial versus femoral access? Did you also compare the prognostic impact of these two approaches?

Conclusion

The candidate has demonstrated creative ability, and the dissertation meets the requirements for a PhD dissertation in the given field. Dávid Bauer, MD has the prerequisites for independent creative scientific work, and I recommend his dissertation for defense pursuant to Section 47 of the Higher Education Act No. 111/1998 Coll., and I recommend awarding the Ph.D. degree.

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