LETTER TO THE EDITOR

A word of caution*

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We read with great interest the review by Moț et al[1] that was published in the latest issue of the *Romanian Journal of Cardiology*. The review aimed at critically dealing with a very hot topic of present-day interventional cardiology: the revascularization strategies in left main atherosclerotic disease. However, we do have some concerns regarding the messages which result from this paper.

A critical review (or overview), as the authors entitle their paper, is a very complex piece of literature that „aims to demonstrate the writer has extensively researched literature and critically evaluated its quality. It goes beyond mere description to include degree of analysis and conceptual innovation and typically results in a hypothesis or model"[2]. The discussed article[1] is a brief listing of past trial results that contributed to the recommendations of the 2018 ESC/EACTS Guidelines on Myocardial Revascularization[3]. The above mentioned guidelines have not been quoted in the references list.

Besides this formal inadequacy, there are other more troublesome issues that have drawn our attention.

To begin with, the overview offers controversial information to its readers. An intravascular ultrasound (IVUS) determined minimal luminal area (MLA) of <6.0 mm^2 has long been demonstrated as the optimal cutoff value for left main revascularization, with a sensitivity of 93%[4]. Most importantly, it has been validated in a large clinical outcome study[5]. In the 2018 consensus document on left main revascularization, the European Bifurcation Club considers the 6.0 mm^2 value as the most robust IVUS-derived cutoff for deferring intervention[6]. A cutoff value of 6.0 mm^2 also agrees with the theoretical value derived from fractal geometry. Using the currently established 3.0 mm^2 as the best MLA cutoff for the left main branches, the left main MLA cutoff by linear law is 5.8mm^2, [7,8]. The <4.5 mm^2 MLA the authors[1] presented as proved literature cutoff was obtained based on the Asian patients' much smaller anatomy. It is therefore contested and considered inappropriate for the Caucasian population[9]. Its 75% negative predictive value is suboptimal, as one in four patients with severe ischemia is missed[9]. In the high-risk clinical scenario of left main disease, this is most certainly unacceptable.

The overview[1] also presents a series of cutoff values for the assessment of an optimal stent area in four important anatomical segments: proximal left main, the polygon of confluence, ostial left anterior descending and ostial left circumflex. It must be mentioned however that these results are biased by the lack of a pre-procedural IVUS examination, a limitation the authors themselves admit to[10]. Moreover, these results are also derived from an Asian population and should therefore be taken very cautiously until further clinical data support their prognostic validity.

We would like to stress out one important aspect the overview improperly presented. According to its authors[1], „clinical outcomes trials are required to recommend imaging as essential part of left main percutaneous coronary interventions". It must be underlined that the 2018 ESC/EACTS Guidelines on Myocardial Revascularization[3] state that IVUS should

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be considered to optimize treatment of unprotected left main lesions (class IIa indication, level of evidence B)[3]. In a study including 1670 patients with left main lesions treated with drug eluting stents, IVUS guidance was associated with a reduced rate of major adverse cardiovascular events (MACE) (cardiac death, myocardial infarction, or target lesion revascularization) within three years, as compared to a non-guided strategy (11.3% vs. 16.4%, P=0.04)[11]. In support of these data, a large recent meta-analysis demonstrated a significantly lower risk of all-cause death, cardiac death and stent thrombosis for IVUS-guided left main interventions[11].

There is one important issue the authors failed to address: the role of left main intravascular imaging in the setting of acute coronary syndromes. Besides confirming the culprit lesion, these examinations define lesion morphology and severity in the not so rare context of angiographically ambiguous left main findings[12]. Most importantly, intravascular imaging can provide additional prognostic information than the classic clinical and anatomic risk factors[13,14]. The IVUS-defined plaque burden is a predictor of subsequent MACE, while the lipid-core burden index as determined by virtual histology IVUS is a predictor of plaque vulnerability and is associated with a worse clinical outcome[13].

In the end, we would like to highlight some other inadequacies, like the use of unclear expressions (e.g. „a lower quality of DES", „large non-compliant balloons"). Regarding the first and the third figure, neither of them complements the text from a scientific point of view. Both of them are merely „before-and-after" still angiography images of left main percutaneous revascularization procedures. In the absence of an IVUS evaluation, and of information regarding other clinical and echocardiographic parameters, their direct correlation with the actual long-term patient prognosis is questionable.

The present letter should be considered as „a word of caution" towards the medical community, as each published paper should be critically read and questioned. As Albert Einstein best put it: "Education is not the learning of facts. It is rather the training of the mind to think."

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