

## The need for standardized premedication protocol for fractional flow reserve and instant wave-free ratio – case report

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Fractional Flow Reserve (FFR) is a wire-based procedure that can accurately measure blood pressure through a specific part of the coronary artery. Instant wave-free ratio (iFR) is a new method that relies on the fact that resistance is naturally constant during the wave-free period for the required measurement. Recently, emphasis is put on increasing usage of FFR/iFR in guiding percutaneous coronary intervention (PCI). FFR is measured after infusion of a hyperemic agent, such as adenosine. The protocol of iFR does not require an infusion of hyperemic agent. In both procedures little is known about intracoronary premedication treatment protocol and it usually varies from hospital to hospital. For the optimal procedure it is of paramount importance to assure the absence of wire induced spasm on functionally insignificant lesions due to the risk of unnecessary PCI treatment.

We present a 55-year-old male patient which was referred to our centre for coronary angiography due to suspected acute coronary syndrome. During the procedure an angiographically insignificant lesion was visualized in the proximal part of left anterior descending artery. FFR was performed, but values on the lesion varied from 0.76 to 0.86. The reason was variable spasm provoked by FFR wire in spite of administration of the hyperemic agent.

In conclusion, there is an obvious need for standardized and validated protocol for intracoronary premedication treatment. It is important to eliminate confounding elements in FFR/iFR measurements in order to assure accuracy and the reproducibility of repeated measurements.<sup>1,2</sup>

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### LITERATURE

- van de Hoef TP, Meuwissen M, Piek JJ. Fractional flow reserve-guided percutaneous coronary intervention: where to after FAME 2? *Vasc Health Risk Manag.* 2015 Dec 3;11:613-22. **DOI:** <http://dx.doi.org/10.2147/VHRM.S68328>
- Sen S, Escaned J, Malik IS, Mikhail GW, Foale RA, Mila R, et al. Development and validation of a new adenosine-independent index of stenosis severity from coronary wave-intensity analysis: results of the ADVISE (Adenosine Vasodilator Independent Stenosis Evaluation) study. *J Am Coll Cardiol.* 2012;59(15):1392-402. **DOI:** <http://dx.doi.org/10.1016/j.jacc.2011.11.003>