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Letter to the Editor

Pressure-bounded coronary flow reserve – Yet a meaningless concept?

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We have read the interesting article by Dr. Wijntjens and coauthors, published recently in the International Journal of Cardiology [1]. The authors showed poor agreement between pressure-derived and flow-derived measurements of coronary flow reserve (CFR). Correlation between pressure-bounded CFR (pb-CFR) and thermodilution-derived CFR (CFR_{thermo}) was particularly weak. However, there was a subgroup where pb-CFR and CFR_{thermo} tallied [1]. In the light of the above and previous publications, pressure-derived estimation of CFR seems to be worthless, at least in terms of prognosis [1,2]. However, basing on our observations we can speculate that in some cases the concept could be still relevant. We studied a group of 113 patients (139 vessels) with intermediate coronary lesions and stable angina. During invasive diagnostic procedure CFR_{thermo} was assessed and pb-CFR was calculated afterwards, according to the previously described methodology [2,3]. In the overall population there was no correlation between pb-CFR and CFR_{thermo} (Spearman $R = 0.11$, $p = 0.29$). Notwithstanding, there was a peculiar subgroup ($n = 13$ vessels) where pb-CFR and CFR_{thermo} were concordant. This small subgroup was characterized by strong correlation between pb-CFR and CFR_{thermo} ($R = 0.84$, $p = 0.0003$, both for lower and upper bound). When the difference between Pd/Pa at rest and FFR was over 0.12, then pb-CFR estimated CFR_{thermo} with 69% sensitivity and 83% specificity. Therefore, we surmise that in the subpopulation where pb-CFR and CFR_{thermo} are concordant, the association between pb-CFR and prognosis might be meaningful.

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