

It's time for a fivesome.

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Abstract

t's time for a fivesome. Commentary to: "The predictive value of five glomerular filtration rate formulas for long-term mortality in patients undergoing coronary artery bypass grafting" Coronary artery disease is an extremely common condition and coronary artery bypass-grafting is still one of the most important therapeutic strategy to treat it. Chronic kidney disease is often affecting patients with CAD. Nevertheless, the literature is still debating what formula estimate the best the glomerular filtration rate in patients undergoing CABG. Indeed, the formulas used in clinical practice have some differences some are more accurate in patients with diabetes, while there are some bias given by age and body mass index. In cardiac surgery, the choice of the most fitting formula to evaluate GFR has important clinical implication and, up to now, three formulas have been compared at most. Eilon Ram et al. present a retrospective study which compares the 5 most used formulas (CG, MDRD, CKD-EPI, Mayo, and IB) to derive GFR to evaluate the one with the best accuracy in predicting long-term mortality. In order to do so, they divided 3744 patients in three groups according to the estimated GFR by means of all 5 formulas: significant CKD according to all formulas, non-significant CKD according to all formulas and discordant results (meaning that at least one formula gave normal GFR and at least one formula gave abnormal GFR). Patients with the highest mortality were the ones with significant CKD according to all formulas.

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Commentary to: "The predictive value of five glomerular filtration rate formulas for long-term mortality in patients undergoing coronary artery bypass grafting"

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MAIN TEXT

Coronary artery disease (CAD) is an extremely common condition and coronary artery bypass-grafting (CABG) is still one of the most important therapeutic strategy to treat it. However, patients with CAD are becoming more complex, with several comorbidities [1]. Chronic kidney disease (CKD) is often affecting patients with CAD [2,3]. Nevertheless, the literature is still debating what formula estimate the best the glomerular filtration rate (GFR) in patients undergoing CABG. Indeed, the formulas used in clinical practice have some differences. Some are more accurate in patients with diabetes [4], while there are some bias given

by age and body mass index [5]. In cardiac surgery, the choice of the most fitting formula to evaluate GFR has important clinical implication and, up to now, three formulas have been compared at most[6].

Eilon Ram et al. [7] present a retrospective study which compares the 5 most used formulas (CG, MDRD, CKD-EPI, Mayo, and IB) to derive GFR to evaluate the one with the best accuracy in predicting long-term mortality. In order to do so, they divided 3744 patients in three groups according to the estimated GFR by means of all 5 formulas: significant CKD according to all formulas, non-significant CKD according to all formulas and discordant results (meaning that at least one formula gave normal GFR and at least one formula gave abnormal GFR). Patients with the highest mortality were the ones with significant CKD according to all formulas. Among all the formulas used, the Mayo formula was the one categorizing more patients with normal GFR and was also the one with the highest ability to predict the 10-year mortality risk. Eilon Ram et al.[7] add a piece of evidence to the current literature that found the Mayo and CKD-EPI formulas as the most accurate in predicting death in CABG patients.

Their findings have profound clinical implications, as every center utilizes different formulas for estimating GFR. Firstly of all, such heterogeneity produces bias among scientific studies. Secondly, it has clinical implication on remark the relevance of the discussion of each case in the Heart Team. Indeed, the choice of the best formula to estimate GFR modifies the perceived mortality risk, therefore every cardiac surgeon and every member of the Heart Team should be aware of the different results that GFR formulas yield. The findings of this research point out the importance of not only use the most fitting formula (which is according to the results the Mayo formula) but also the importance of the concordance among the GFR estimated by all formulas: patients with discordant results have lower risk than patients with results which are concordant in giving a lower GFR.

Interestingly, most of the patients included in the study are males. In the last years, more attention has been given to the “Gender medicine” and possible difference given by the sex of the patients. Indeed, most of trials are conducted on male patients [8], making hard to generalize results also to the female patients.

We believe that the study conducted by Eilon Ram et al.[7] offers to the readers new insight on which formula is the most fitting in cardiac surgery practice and might inspire others to evaluate such equations in gender specific situations, to improve gender specific medicine.

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