EDITORIAL COMMENT

Management of patients after computed tomography coronary angiography: Evidence and room for improvement

Tratamento de doentes após angiocoronariografia computorizada: evidência e espaço para aperfeiçoamento

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In recent years coronary computed tomography angiography (CCTA) has become the unquestionable gold standard for non-invasive coronary anatomy assessment. Its role in the management of patients with chest pain is gaining importance in the clinical arena and the tendency in recent guidelines is to prefer CCTA as first-line testing over other imaging modalities.[1]

However, CCTA is a purely anatomical test and one of the main criticisms that have been made of its widespread use is that it may increase unnecessary referrals for cardiac catheterization, another anatomical test. Furthermore, the lack of a unified reporting system may limit the clinical impact of the test on subsequent management.

In order to improve patient management after CCTA, a standardized reporting system has recently been introduced.[2] The Coronary Artery Disease - Reporting and Data System (CAD-RADS) classification parallels similar successes in other areas of medicine, notably the BI-RADS classification for breast exams, and provides recommendations for further management, according to the test result. Patients with no coronary artery disease or no significant stenosis (>50%) detected on CCTA should be excluded from further testing, while those with detected stenosis should proceed to ischemia assessment or viability testing and/or invasive coronary angiography (ICA), if appropriate.[3] One of the main advantages of this approach is its emphasis on the need for functional testing before ICA when intermediate and/or severe stenosis is detected on CCTA, in order to reduce false positive referrals and the 'oculo-stenotic reflex' in the catheterization laboratory.

In this issue of the *Journal*, an interesting paper by Guerreiro et al.[4] describes the post-test management of 200 patients referred for CCTA due to suspected or known coronary artery disease in a Portuguese tertiary center prior to the introduction of the CAD-RADS classification in CCTA reports, comparing post-test management with that proposed under the new system. Interestingly, but not unexpectedly, the results show that in patients with CAD-RADS classifications at the ends of the spectrum, additional cardiac investigation after CCTA was almost always in agreement with the recommendations, but in patients with

intermediate scores, ICA prevailed over functional testing. This result reinforces the general perception that too many patients are being directly referred for catheterization after CCTA, and are therefore being excluded from the benefits of functional testing (which could potentially improve subsequent treatment). Even in patients with more severe stenosis (>70%) – in whom direct referral for catheterization may be considered under the CAD-RADS classification (and were therefore considered in agreement with the CAD-RADS recommendations in this paper) – these real-world data reveal the clear preponderance of anatomically-driven paths in patient management after CCTA (with non-invasive testing performed in only 10% of these cases). It is clear that, as the authors state, not all of these patients were excluded from functional testing, since some may have been tested invasively using fractional flow reserve or instantaneous wave-free ratio measurement. Nevertheless, the under-use of non-invasive functional tests in this population demonstrates that there is room for improvement and should prompt reflection concerning the causes and actions required. As Guerreiro et al. noted, easy access to ICA compared to stress imaging tests may explain a significant part of this referral bias. Therefore, in order to fully benefit from the unprecedented information provided by advanced imaging modalities like CCTA, cardiology departments as we know them must change. For the sake of better patient management, promotion of timely and accurate non-invasive diagnostic approaches (reserving ICA mostly for therapeutic procedures) is essential. Cath-lab-centered departments should give way to balanced and structured units in which multimodality non-invasive and invasive techniques are equally available. Only then can we look forward to the full positive impact on both efficacy and costs of these techniques and the additional value of systematic classification systems like CAD-RADS in clinical practice.

Conflicts of interest

The author has no conflicts of interest to declare.

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