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LETTER TO THE EDITOR

Standardised designation of commercial troponin immunoassays

Standaryzacja opisu komercyjnych testów do oznaczania troponin

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We read with interest the article by Pracoń et al. [1], which recently concluded that a newer generation sensitive cardiac troponin I (TnI) assay showed greater diagnostic accuracy in the diagnosis of acute myocardial infarction (AMI) when compared to a standard TnI test.

Although the results of this study are indeed valuable, they differ from those obtained in a similar investigation, where contemporary (Beckman Coulter AccuTnI) and highly sensitive (Beckman Coulter HS-AccuTnI) immunoassays were used, obtaining nearly equal diagnostic performances [2]. This difference is nothing but ancillary and mainly resides in uncertainty around terms such as "standard", "contemporary", "sensitive" and "highly-sensitive" for designating troponin immunoassay, which frequently leads to misleading interpretations of troponin test results within the same study, and sometimes even across different investigations [3].

Besides the traditional classification of troponin immunoassays currently advocated by Apple (i.e. according to the percentage of measurable values below the 99th percentile of the upper reference limit [URL]) [4], it has been recently suggested that the mainstay for designating the diagnostic performance of different troponin tests is the transformation of values from ng/L to pmol/L [5]. This can be easily achieved by multiplying results of TnI for 0.042, and those of troponin T

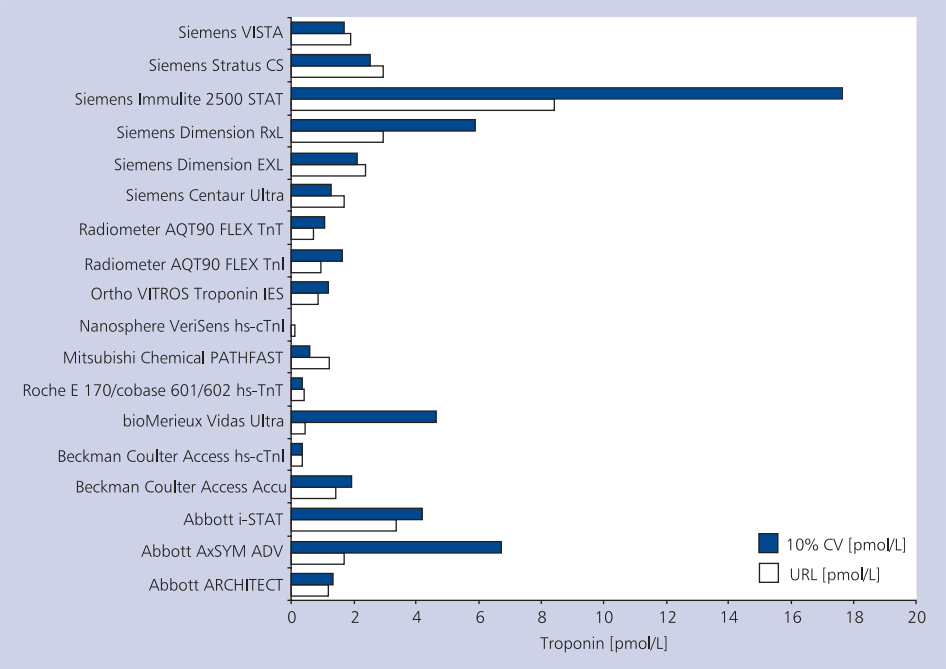

Figure 1. Standardised designation of 99th percentile of the upper reference limit (URL) and concentration with 10% imprecision (10% coefficient of variation [CV]) of commercial troponin immunoassays according to molar measure unit

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(TnT) for 0.028. As such, by retrieving data from the Troponin Assay Analytical Characteristics database maintained by the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC) [6], as well as by updating the older data with those contained in newly published articles [7, 8], we provide here a standardised designation of the current commercial troponin immunoassays, where the URL and the troponin concentration with 10% imprecision (10% coefficient of variation [CV]) are both reported in the more acceptable and IFCC-recommended molar measure unit (Fig. 1). This representation has several advantages.

Firstly, molar expression helps both laboratory professionals and clinicians to more appropriately designate cut-offs and interpret test results, even among separate studies. Secondly, the molar expression allows a direct comparison between TnI and TnT immunoassay performance, which is inherently misleading using the traditional measure unit [9]. Finally, this graphical representation is useful for identifying those immunoassays in which the value of the URL is lower than that of the 10% CV, thereby allowing the adoption of more reliable diagnostic thresholds. This is the case with the Dimension Flex Troponin I assay used in the study by Pracoń et al. [1], for example, where the value of the URL is half of that with a 10% CV.

Conflict of interest: *none declared*

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