COLLEGE of AMERICAN PATHOLOGISTS

Educational Discussion: Reporting High-Sensitivity Troponin Results

2016-C Cardiac Markers Survey (CAR)

High-sensitivity cardiac troponin (hs-cTnT and hs-cTnI) assays are available worldwide except for the United States, where no hs-cTn assays have received clearance from the Food and Drug Administration (FDA). Globally the Abbott hs-cTnI and Roche hs-cTnT assays are the only hs-cTn tests marketed. Over the past few years there has been a notable increase in laboratories (appropriately outside of the United States) reporting proficiency testing results within the hs-cTn peer groups in the CAP Cardiac Marker Survey.

The 2016-C Cardiac Markers Survey (CAR) was updated to reflect the international reporting recommendations for hs-cTn which universally state that hs-cTn concentrations should be expressed in nanograms per liter (ng/L) and results should be reported in whole numbers[1,2]. This guidance was put forth as a means to avoid confusion by having unnecessary zeros following the decimal point if the same reporting convention was used for assays not designated as high-sensitivity (ng/mL or µg/L). Adopting this convention also avoids clinical errors in data reporting for both electronic medical records and electronic data transfer, where decimal rounding to zero is a true risk. Changes to the CAP CAR Survey were conducted to eliminate potential transcription errors from laboratories attempting to convert results back to ng/mL because no option was previously given to report in ng/L.

As laboratories in the United States are not clinically using high-sensitivity cardiac troponin assays, they therefore should not be reporting cardiac troponin results in whole numbers or ng/L.

Amy K. Saenger, PhD, DABCC
Chemistry Resource Committee

1. Apple FS, Jaffe AS, Collinson P, et al. International Federation of Clinical Chemistry (IFCC) Task Force on Clinical Applications of Cardiac Bio-Markers. IFCC educational materials on selected analytical and clinical applications of high sensitivity cardiac troponin assays. *Clin Biochem.* 2015 Mar;48(4-5):201-3.
2. Thygesen K, Alpert JS, Jaffe AS, Simoons ML, Chaitman BR, White HD; Joint ESC/ACCF/AHA/WHF Task Force for the Universal Definition of Myocardial Infarction. Third universal definition of myocardial infarction. *Circulation.* 2012 Oct 16;126(16):2020-35.

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Educational Discussion: Troponin

2016-A Cardiac Markers Survey (CRT, TNT, TNT5)

Reporting High-Sensitivity Troponin Results

High-sensitivity cardiac troponin (hs-cTnT and hs-cTnI) assays are available worldwide except for the United States, where no hs-cTn assays have received approval from the Food and Drug Administration (FDA). Over the past few years there has been a notable increase in laboratories (appropriately outside of the United States) reporting proficiency testing results within the hs-cTn peer groups in the CAP Cardiac Marker Survey.

It is uniformly recommended that hs-cTn concentrations should be expressed in nanograms per liter (ng/L) and results should be reported in whole numbers[1,2]. This guidance was put forth as a means to avoid confusion by having unnecessary zeros following the decimal point if the same reporting convention was used for assays not designated as high-sensitivity (ng/mL). As an example, a hs-cTn concentration of 7 ng/L equates to 0.007 ng/mL using the same contemporary troponin units; retaining the same format for hs-cTn results was recognized to have significant opportunity which could lead to misinterpretation of results and patient harm. Adopting this convention also avoids clinical errors in data reporting for both electronic medical records and electronic data transfer, where decimal rounding to zero is a true risk.

We will be working towards updating the result form to reflect these international reporting recommendations for hs-cTn and allow proficiency testing samples to be reported in the same manner as patient results (whole numbers, ng/L). This will eliminate potential transcription errors from laboratories attempting to convert results back to ng/mL because no option was given to report in ng/L.

Laboratories in the United States are not clinically using high-sensitivity troponin assays and therefore should not be reporting troponin results in whole numbers.

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