Letters to the Editor should be typed double-spaced (including references) with conventional margins. The overall length is limited to five manuscript pages, including not more than one figure or one table.

Clinically Significant Decision Levels of hCG

To the Editor:

I read with interest the recent article by Zoltan et al. (1) regarding the use of an algorithm for testing and reporting serum chorionic gonadotropin at clinically significant decision levels with use of "pregnancy test" reagents. They stated that all human chorionic gonadotropin (hCG) concentrations (except where noted) were reported in WHO First International Preparation (1st IRP) units.

However, when utilizing the work of Kadar et al. (2–4) to establish a discriminatory zone of 6000 to 6500 IU/L to enhance the diagnosis of ectopic pregnancy by sonography, they failed to note that Kadar uses Second International Reference Preparation (2nd IRP) in his work.

Given that numerical hCG concentrations based on the 1st IRP are approximately double that of 2nd IRP, it would follow that a discriminatory zone of 12 000–13 000 IU/L may be more appropriate if 1st IRP is the standard.

References


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Reducing Misdiagnosis of Myocardial Infarction

To the Editor:

A recent study (1) based on 200 consecutive patients with autopsy-proven myocardial infarction (MI) reaffirmed the fact that almost half of the patients who died of MI were not diagnosed with such before autopsy. The high diagnostic-failure rate, confirmed by other previous studies, suggests that almost half a million Americans die of MI and many more become disabled without receiving the benefit of therapeutic and surgical advances made towards limiting myocardial injury.

Autopsy studies (2, 3) and in-hospital mortality studies (4) suggest the need for increased awareness of possible MI in ill patients who may present atypical clinical history and may have MI as a secondary complication. They also indicate that CK-MB abnormality may be found more often than abnormal electrocardiograms (EKG) in patients likely to be misdiagnosed. Therefore, liberal use of and increased reliance on the CK-MB test in hospitalized patients, even in the absence of typical chest pain, may reduce the incidence of misdiagnosed MI.

The reliance on CK-MB results over EKG has increased over the last 15 years in diagnosing patients who arrive at the hospital with acute chest pain. This has allowed increased recognition of non-Q-wave MI. In one study (5), the incidence of Q-wave MI increased by 29% between 1975 and 1981, but that of non-Q-wave MI increased by 93%. This finding was attributed partly to increased reliance on CK-MB results and less reliance on EKG.

A recent paper in this journal by Schwartz et al. (6) exemplifies problems one would face if relying on CK-MB test results in the absence of both typical clinical history and diagnostic EKG. They observed that 15 of 32 specimens from emergency room patients gave discordant results when tested by four CK-MB methods, raising questions about the reliability of the CK-MB methods. The increase of CK-MB, when observed, was relatively small and, in most of these patients, clinical history and EKG were not supportive of MI diagnosis. In addition, the study further supported previously made observations that the use of percent CK-MB diminishes diagnostic accuracy.

It is often not recognized that at least three different populations of hospitalized patients are subjected to CK-MB testing. The reference range for the nondiseased population and the pattern of CK-MB change are different for each population. The three populations are: (a) patients with their first episode of MI and (or) Q-wave MI; (b) patients with atypical or concealed clinical history and (or) non-Q-wave MI, often associated with second MI, old age, and coexisting illness; and (c) patients with traumatic injuries. The peak CK-MB value achieved and the pattern of CK-MB release/disappearance are significantly different in each subpopulation.

Published data suggest that the majority of patients tested for MI belong to group a and that most CK-MB methods are evaluated and found accurate for such patients. On the other hand, most of the misdiagnosed patients are likely to belong to group b or c. Most of the discordant results among test methods, as observed by Schwartz et al., were found in these two groups.

With regard to the immunoradiometric method described by Schwartz et al., I have evaluated it for different populations and have compared it with various CK-MB methods as previously summarized (7). I observed in these studies that the upper limit of the reference range may be 4.5–5.0 U/L for group a, 2.8–3.6 U/L for group b, and 5.0–8.5 U/L for group c. Agreement among the CK-MB-specific methods was best when CK-MB values exceeded 5 U/L and worst when CK-MB was in the 2.9–5.0 U/L range.

Recognition of different populations, selection of a CK-MB test method suitable for the subject population, and appropriate timing for sample collection would increase diagnostic efficiency of CK-MB results. This will not only minimize unrecognized MI in nonsurviving patients, but will also minimize hospitalization and medication costs for the patients who survive, but who continue to be rehospitalized with MI or angina-type symptoms without ever being diagnosed as having MI (8).

References

1. Cocchi A, Franceschini G, Antonelli In-