

Abstract No. **63**

Category: **Acute Coronary Syndromes**

Title: **Determination of the 99th Percentile of the High-Sensitive Troponin T in Healthy Subjects and Comparison with Blood Levels of a Cardiovascular Disease Group**

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**Abstract:**

**Background:** Cardiovascular disease is the leading cause of death in Costa Rica, accounting for 30% of deaths each year. Troponin has been used clinically in algorithms for the assessment of acute coronary syndrome. According to the fourth universal definition of acute myocardial infarction, the 99th percentile of the upper limit of the troponin value is the diagnostic cornerstone of myocardial infarction. Improvement in high-sensitive Troponin T (hsTnT) has decreased the incidence of unstable angina and increased the diagnosis of non-ST elevation myocardial infarction. In Costa Rica, there are no studies on the quantification of the 99th percentile of troponin in healthy or cardiovascular risk subjects.

**Methods:** In December 2018, hsTnT levels were identified in two groups that were randomly selected, including 300 healthy blood donors and 300 subjects with stable cardiovascular disease from an outpatient clinic located in Costa Rica. The 99th percentiles of the upper limits in the two groups were statistically compared.

**Results:** The 99th percentile of the hsTnT of the healthy group was 13.31 ng/l, while it was 76.21 ng/l in the cardiovascular disease group. There was a significant difference in the hsTnT values for the healthy group ( $M=4.04$ ,  $SD=2.03$ ) and the disease group ( $M=12.40$ ,  $SD=12.71$ );  $t(595)=-11.25$ ,  $p<.001$ .

In healthy subjects, the 99th percentiles of hsTnT in men and women were 14.64 ng/l and 5.96 ng/l, respectively. The 99th percentile of hsTnT in men with heart disease was 78.56 ng/l and in women it was 55.53 ng/l. There was a linear relationship between age and hsTnT values (Figure 1).

Higher values of the 99th percentile in the group with cardiovascular disease were found in patients with cardiomyopathy (100.60 ng/l), valvular heart disease (72.00 ng/l), arrhythmias (66.82 ng/l) and heart failure (60.80 ng/l).

The subgroup of patients with coronary artery disease, percutaneous coronary intervention and coronary artery bypass graft surgery had moderately elevated cutoff values of the 99th percentile (Table 1).

**Conclusion:** The 99th percentile in the cardiovascular disease group was significantly higher than the healthy group. Men in both groups had higher levels of troponin compared to women. Furthermore, there was a progressive increase according to the age in the healthy subjects.

A complete clinical background must be examined along with a high performance clinical use of troponin to make an accurate acute myocardial infarction diagnosis. The tendency of the troponin

level over time is important in the diagnosis, especially in patients with a history of cardiovascular disease. Finally, the term “negative troponin” or “positive troponin” should be avoided.