2nd International Conference on

Internal Medicine & Hospital Medicine September 13-14, 2017 Dallas, USA

The elephant in the room: Predicting cardiac chest pain

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Background: Chest pain is a common complaint, and accounts for more than six million visits to the Emergency departments in the United States annually. It is difficult to risk stratify such patients to determine disposition, yet risk stratification is essential for better patient management. The main objective of our study is to determine factors associated with cardiac chest pain compared to non-cardiac chest pain and to develop a predictive risk model using clinical characteristics. Additionally, our developed model will be compared to previously validated tools such as Heart Score (HS), Thrombolysis in Myocardial Infarction (TIMI), Emergency Department Acute Coronary Syndrome and Framingham scores.

Methods: The study included 295 patients who were admitted with chest pain to our community based hospital between 2012 and 2013. Cardiac chest pain was defined as EKG findings suggestive of cardiac ischemia, abnormal cardiac enzymes, a positive stress test, or >70% lesion on coronary angiogram. Data was analyzed using chi square, student t-test, and logistic regression analysis. A predict parsimonious model was developed and compared to all other scores using various summary indices including area under the curve (AUC) and Akaike Information Criteria (AIC).

Results: A total of 59 patients had cardiac chest pain and were compared to 236 patients with non-cardiac chest pain. Among all considered factors, CPK-MB, troponin, smoking status, Heart Score, exacerbating factors (none) and alleviating factors (Nitroglycerine, morphine, None) were found to be associated with cardiac chest pain. Our developed model, the Anahata score, trended towards having a higher performance than HS (p=0.07). Although not statistically significant, the Anahata score had a higher AUC (0.75 vs. 0.70) when compared to the combined CPK-MB and HS model (p=0.22).

Conclusion: Based on our data, we have developed a risk stratification model that may outperform previous models for our inner-city, tertiary, community-based hospital. Our model needs to be validated in future prospective studies with a larger sample size.

Biography

Shirisha Pasula was born and brought up in a small village - Kalwakurthy in Southern India. She was always passionate towards medicine and finished medical school from Kakatiya medical college, Warangal in 2010. She worked for few years as a junior resident there while preparing for USMLE exams. She rotated in few hospitals here to get exposure to the system in United States and moved to Cincinnati because of my husband's job. She started as a volunteer research assistant for this research project and got into residency in the same hospital that is TriHealth-Good Samaritan hospital, Cincinnati. She is a 2nd year resident. She is volunteering for developing library website for our hospital for residents. She Would like to pursue hematology/oncology fellowship and doing couple of research projects in that field. (1. Prevalence of folate deficiency 2. Epidemiology of cholangiocarcinoma). She is also part of hematology/oncology leadership council for developing protocols.

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