

https://dspace.org/

Interpretation and knowledge of 12 lead ECGs and thrombolytic therapy of paramedics in Gauteng and North west provinces in South Africa

Louw, Nicolaas Everhardus

2016-02-10
http://hdl.handle.net/10539/19488

Downloaded from a DSpace repository. https://dspace.org/

INTERPRETATION AND KNOWLEDGE OF 12 LEAD ECGs AND THROMBOLYTIC THERAPY OF PARAMEDICS IN GAUTENG AND NORTH WEST PROVINCES IN SOUTH AFRICA

Authors: Nico Louw, Efraim Kramer

ABSTRACT

Introduction

Pre-hospital Thrombolytic Therapy (TT) has been proven beneficial and widely practiced in many countries, yet only since November 2009 has it been introduced in South Africa (SA) as part of the scope of practice of the Advanced Life Support (ALS) paramedics with a Bachelor's degree (BTech) qualification. Other ALS qualified paramedics in SA, with either a National Diploma (NDip) or Critical Care Assistant (CCA) qualification, who also treat patients with Acute Coronary Syndromes (ACS), are not mandated by the Health Professions Council of South Africa (HPCSA) to administer TT. As the 12 lead ECG is one of the important variables to determine if a patient is a candidate for TT, this exploratory study analysed the ability of the different qualifications of paramedics to interpret 12 lead ECGs, and to decide whether a patient is a candidate for TT, The performance of the paramedics were compared against the various demographical information of the participating paramedics.

Methods

An exploratory prospective study was conducted over a two month period during which contact sessions with paramedics from two provinces in South Africa were held – Gauteng, being predominantly urban and North West, a rural province.

Participants completed a demographic questionnaire with information related to their working experience and educational background. Thereafter, they interpreted six 12 lead ECGs, all being cases of ACS, according to 13 specific questions. The questions were divided into 3 categories namely 1) Accuracy of interpreting the 12 lead ECG; 2) Knowledge on the anatomy of the heart; and 3) Making the decision if the patient is a candidate for TT. The paramedics did not have time to prepare for the questionnaire as the aim was to test their current knowledge. Once completed, the questionnaires were marked and analysed using Statistica® and the results were compared against the three qualifications (BTech, NDip and CCA) as well as eight other demographic variables. These were 1) the sector in which the paramedics worked; 2) The province the paramedics were working in; 3) Their primary daily responsibility; 4) Operational hours worked per month; 5) Exposure to ACS patients per month; 6) Extra hours worked in the Emergency Department; 7) Exposure to 12 lead ECGs per month and 8) The role of the ACLS® courses on their performance.

Results

A total of 75 paramedics participated in the study, and 444 completed 12 lead ECG interpretations were collected. Of the 75 participants, 60 were from Gauteng, and 15 from North West, of which 16 were BTech, 21 were NDip, and 38 were CCA qualified. The BTech paramedics performed the best in all three categories of questions concluding with an average score of 75.7% (95% CI 65.0% - 86.42%), yet in category 2, which related to the anatomy of the heart, the average performance was 50.4% and in category 3, related to the decision if the patient is a candidate for TT, the average performance was 62.9%. The one way ANOVA test showed no statistically significant difference ($p = 0.4723$) between the performance of the different qualifications nor did any of the eight other variables render any significant

difference. The overall performance of all the paramedics was 72.6% (95% CI 61.35% - 83.93%).

Conclusion

Participating paramedics indicated their minimal exposure to patients experiencing ACS or to 12 lead ECGs. The average performance of all qualifications of paramedics was above 70%, even in the absence of any preparation for this study. Yet their knowledge on the anatomy of the heart and knowing whether a patient is a candidate for TT was concerning low. Although the BTech paramedics performed the best, there was no significant difference between the performances of the different qualifications of paramedics. It remains a necessity to have continuous training programmes, quality assurance mechanisms, together with appropriate support systems, to ensure that all three qualifications of paramedics, from the two respective provinces in SA, may perform on an adequate level and be mandated to administer pre-hospital TT.