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Developing useful prognostic tools for risk assessment: Predictors of mortality in catheter-related bloodstream infections

Ahmed El-Tahtawy
Pfizer Inc., USA

Introduction: Catheter-related bloodstream infections (CRBSIs) remain a common challenge in critically ill patients. Predictors of mortality in this population across different treatments have not been well studied. Our objective was aimed at developing useful prognostic tools and predictive models for relative risk adjustment for mortality in patients with CRBSI.

Methods: We used a recent trial data of 731 patients with CRBSIs randomized to drug (x) and vancomycin(VAN). Our mortality analysis plan involved a sequence of specific step; data mining, non-parametric methods, and finally parametric (logistic) modeling.

Results: Both CART and logistic regression identified MPMS, age, baseline corticosteroid exposure, region of world of enrolling study site, and infection with a gram negative pathogen as the most important factors associated with mortality. Together, these five predictors contained more than 95% of the prognostic information in the clinical data (baseline, developed). Logistic modeling allowed us to combine and investigate the effect of different prognostic variables on mortality. The validated model accurately estimated likelihood of mortality across different patient population with unique characteristics.

Conclusions: Appropriate antibiotic therapy remains a key driver of mortality in CRBSI. Efforts to improve outcomes can be facilitated with using a validated predictive models and the use of prognostic tools, like nomograms, to calculate the probability of mortality for any specific patient. The early prognosis would assist clinicians to identify high risk patients and to select the appropriate therapy.

ahmed.el-tahtawy@pfizer.com

Starting clinical practice from the scratch

Mohammed Adel Mohammed Abdel Mohsen, Islam Abdo Mohammed Selim and Fatma Ibrahim Fahy
Al-Ahrar Zagazig Teaching Hospital, Egypt

Aim: To carry an observational study on medication errors in coronary care unit (O-MECCU).

Background: Medication errors in coronary care unit were subjected to a prospective observational study to assess the implications of the starting program of clinical pharmacy in Coronary Care Unit (CCU) in a teaching Hospital located in Egypt.

Methods: The study observers recorded and categorized the medication errors that were reported by the clinical pharmacists to the physicians during daily rounds concerning 723 patients admitted to the Coronary Care Unit in 300 beds Teaching Hospital in Egypt from October 2014 till December 2015. Continuous additional data is being collected beyond this period for further analysis.

Results: The observers detected that the clinically significant drug-drug interactions that influence therapeutic drug plans occurred in (8.71%) of the patients while the percentages of over doses (18.86%), sub-therapeutic doses (23.68%), adverse drug reactions (5.39%), contraindications (3.87%), drug without indications (16.87%), unnecessary antibiotic use (25.03%) and untreated indications (15.09%) from the total number of the patients in the study. In addition, the percentage of patients who have been prescribed with the proper medication regimens without any medication error was (37.62%).

Conclusion: The relatively increased percentages of detected medication errors indicate that the presence of the clinical pharmacist is important to decrease the prevalence of medication errors and help other healthcare team members to take better and safer medication therapy management decision.

mohammed_ss11v@yahoo.com