Global Research Highlights

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Reduction of Inappropriate Antibiotic Use and Improved Outcomes by Implementation of an Algorithm-Based Clinical Guideline for Nonpurulent Skin and Soft Tissue Infections

N John P. Haran, Melissa Goulding, Maureen Campion, Gail Scully, Arnav Chandra, Rebecca Goldberg, Allyson Day, Emily McLendon, Melissa A. Clark

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Objective

Clinicians currently do not reliably adhere to antibiotic treatment guidelines, resulting in unnecessary patient exposure to broad-spectrum antimicrobials. Our objective is to determine whether a treatment intervention for the management of nonpurulent skin and soft tissue infections increases clinician adherence and improves patient outcomes.

Methods

Between January 1 and December 31, 2017, patients presenting to 2 emergency departments (EDs) and who had received a diagnosis of a nonpurulent skin and soft tissue infection were enrolled and assigned to a pre- or postintervention cohort with a treatment intervention implemented on June 1. Primary outcomes were percentage of ED providers following the guidelines and percentage of patients admitted to the hospital. Secondary outcomes were patient self-reported treatment failure and hospital readmission.

Results

There were 1,360 patients, 665 in the preintervention and 695 in the postintervention cohorts. After algorithm implementation, guideline adherence increased (43.0% versus 55.1%; $P < .001$) and number of patients admitted to the hospital declined (36.5% versus 12.0%; $P < .001$). In addition, patients reported fewer treatment failures (26.8% versus 16.5%; $P = .02$) and fewer readmissions (22.3% versus 12.7%; $P = .013$). After multivariate adjustment, guideline adherence increased by 22% (adjusted relative risk [RR] 1.22; 95% confidence interval [CI] 1.10 to 1.37), whereas hospital admissions were reduced by 26% (adjusted RR 0.74; 95% CI 0.64 to 0.87). In addition, the risks of treatment failure and readmission were reduced by 46% (adjusted RR 0.64; 95% CI 0.43 to 0.97) and 45% (adjusted RR 0.55; 95% CI 0.34 to 0.87), respectively.

Conclusion

Among patients with a nonpurulent skin and soft tissue infection, implementing an easy-to-follow treatment algorithm can reduce unnecessary antibiotic exposure by increasing clinician guideline adherence while reducing patient treatment failure rates.

African journal of emergency medicine

Triage conducted by lay-staff and emergency training reduces paediatric mortality in the emergency department of a rural hospital in Northern Mozambique

He Dekker-Boersema J, Hector J, Jefferys LF, Binamo C, Camilo D, Muganga G, Aly MM, Langa EBR, Vounatsou P, Hobbins MA

Introduction

The majority of emergency paediatric death in African countries occur within the first 24 h of admission. A coloured triage system is widely implemented in high-income countries and the emergency triage and assessment treatment (ETAT) is recommended by the World Health Organization, but not put into practice in Mozambique. We implemented a three-colour triage system in a rural district hospital with lay-staff workers conducting the first triage.

Methods

A retrospective, before and after, mortality analysis was performed using routine patient files from the district hospital between 2014 and 2017. The triage system was implemented in August 2016. Inclusion criteria were children under 15 years of age that entered the emergency centre. Primary outcome was child mortality rate. Secondary outcomes included the percentage agreement between the clinical and non-clinical staff and the duration from triage to first treatment. We used a negative binomial model in STATA 15 to compare mortality rates, and Kappa statistics to estimate the agreement between clinical and non-clinical staff.

Results

4176 admissions were included. The mortality rate ratio (MMR) was 45% lower after the start of the intervention (2016; MRR = 0.55; 0.38, 0.81; p = 0.002), compared to before. To estimate the agreement between non-clinical and clinical staff, 548 (of the 671) patient files were included. The agreement was estimated at 88.7% (Kappa = 0.644; p < 0.001). The median waiting time decreased with urgency of the triage: 2 h33 for 'green'/least serious (IQR 1 h58-3 h30), 21 min for yellow/serious (IQR 0 h10-0 h58) and nine minutes for 'red'/urgent (IQR 2-40 min).

Conclusion

In a rural setting with nurse-led clinical care and non-clinician staff working at the triage reception, implementation of a three-coloured triage system was feasible. Triage and ETAT training was associated with a decrease of 45% of paediatric deaths. The impact on mortality, low cost, and ease of the implementation supports scaling this intervention in similar settings.

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Emergency Medicine Journal

Prognostic accuracy of the quick Sequential Organ Failure Assessment (qSOFA)-lactate criteria for mortality in adults with suspected bacterial infection in the emergency department of a hospital with limited resources

Robert Sinto, Suhendro Suwarto, Khie Chen Lie, Kuntjoro Harimurti, Djoko Widodo, Herdiman T Pohan
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Background

Routine use of the Sequential Organ Failure Assessment (SOFA) score to prognosticate patients with sepsis is challenged by the requirement to perform numerous laboratory tests. The prognostic accuracy of the quick SOFA (qSOFA) without or with lactate criteria has not been prospectively investigated in low and middle income countries. We assessed the performance of simplified prognosis criteria using qSOFA-lactate criteria in the emergency department of a hospital with limited resources, in comparison with SOFA prognosis criteria and systemic inflammatory response syndrome (SIRS) screening criteria.

Methods

This prospective cohort study was conducted between March and December 2017 in adult patients with suspected bacterial infection visiting the emergency department of the Indonesian National Referral Hospital. Variables from sepsis prognosis and screening criteria and venous lactate concentration at enrolment were recorded. Patients were followed up until hospital discharge or death. Prognostic accuracy was measured using area under the receiver operating characteristic curve (AUROC) of each criterion in the prediction of in-hospital mortality.

Results

Of 3026 patients screened, 1213 met the inclusion criteria. The AUROC of qSOFA-lactate criteria was 0.74 (95% CI 0.71 to 0.77). The AUROC of qSOFA-lactate was not statistically significantly different to the SOFA score (AUROC 0.75, 95% CI 0.72 to 0.78; p = 0.462). The qSOFA-lactate was significantly higher than qSOFA (AUROC 0.70, 95% CI 0.67 to 0.74; p = 0.006) and SIRS criteria (0.57, 95% CI 0.54 to 0.60; p < 0.001).

Conclusion

The prognostic accuracy of the qSOFA-lactate criteria is as good as the SOFA score in the emergency department of a hospital with limited resources. The performance of the qSOFA criteria is significantly lower than the qSOFA-lactate criteria and SOFA score.