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POSTER ABSTRACT

Systematic Review of Neonatal Risk Evaluation Scales

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Introduction

In Ecuador, according to the National Institute of Statistics and Census Institute, in 2018 the infant mortality rate was 12.2 deaths per 1,000 live births and the neonatal mortality rate was 6.0 deaths per 1,000 live births. Infant mortality is a useful indicator of the health's state of a population and allows inferring the state of socioeconomic conditions of a country. Several tools have been developed to reduce infant and neonatal mortality, among them the measurement of mortality risk through a scoring system are the most used. These tools allow the timely attention, management, and treatment of groups.

Aims Objectives Theory or Methods

To carry out a systematic review of the available scientific literature of neonatal mortality risk scales in order to determine their usefulness for the Ecuadorian context. A literature search was performed in MEDLINE, EMBASE, The Cochrane Library and gray literature sources, to identify studies published up to December 2018. Data were selected and extracted by two reviewers independently. The main outcome is mortality evaluated through risk scales applied to neonates. Other secondary outcomes considered were hospitalizations, hospital readmissions, unscheduled consultations, and emergencies. The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyzes) flow chart of the study identification and selection.

Highlights or Results or Key Findings

A total of 7448 studies were identified, which resulted in a final selection of 3 studies that met the inclusion criteria. The selected studies included scales that used laboratory parameters and were carried out in neonatal care units and made comparisons between different SNAPPE II and CRIB II scales of neonatal risk prediction. The two scales include both clinical and laboratory variables. The results regarding the prediction of mortality in neonates were similar for the SNAPPE II scale and the CRIB II scale with AUC of 0.913, (SE) 0.014; SNAPPE-II AUC 0.907, (SE) 0.012 for mortality prediction. A meta-analysis was not possible due to heterogeneity in the results of the identified studies. No studies were found regarding to the secondary outcomes. There were no scores to determine the neonatal risk that could be apply in the country because not all of the blood markers are avalaible.

Conclusions

Neonatal risk scales can be used to predict risk of neonatal mortality, however there is limited evidence on which scale is best for the purpose. Several proposed scales include variables related to laboratory markers that are not always included in the management of patients in the Ecuadorian context.

Implications for applicability/transferability sustainability and limitations

Integrated newborn care should include elements of risk assessment. Existing scoring systems are unsuitable for resource-limited settings which lack investigations like pH, pO2/FiO2 ratio, base excess, and other laboratorial inputs. After a systematic review of the published scientific literature, it was not possible to identify a risk scoring system.