

Diagnostic accuracy and predictive value in differentiating the severity of dengue infection

ABSTRACT

Objective: To review the diagnostic test accuracy and predictive value of statistical models in differentiating the severity of dengue infection. **Methods:** Electronic searches were conducted in the Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials, MEDLINE (complete), PubMed and Scopus. Eligible studies to be included in this review were cohort studies with participants confirmed by laboratory test for dengue infection and comparison among the different severity of dengue infection by using statistical models. The methodological quality of the paper was assessed by independent reviewers using QUADAS-2. **Results:** Twenty-six studies published from 1994 to 2017 were included. Most diagnostic models produced an accuracy of 75% to 80% except one with 86%. Two models predicting severe dengue according to the WHO 2009 classification have 86% accuracy. Both of these logistic regression models were applied during the first three days of illness, and their sensitivity and specificity were 91-100% and 79.3-86%, respectively. Another model which evaluated the 30-day mortality of dengue infection had an accuracy of 98.5%. **Conclusion:** Although there are several potential predictive or diagnostic models for dengue infection, their limitations could affect their validity. It is recommended that these models be revalidated in other clinical settings and their methods be improved and standardised in future.

Keyword: Accuracy; Analyse systématique; Dengue; Dengue severity; Diagnostic models; Modèles de diagnostic; Précision; Systematic review; Sévérité de la dengue