Paper Poster Session VI
Tuberculosis - clinical issues

A prediction rule to stratify mortality risk of patients with pulmonary tuberculosis in the absence of comorbidities

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Objectives: One of tuberculosis hallmarks is the difference in outcomes observed in patients, calling for the importance of developing clinical severity prediction models. This study aims at developing a clinical prediction rule to stratify mortality risk among patients with pulmonary tuberculosis in the absence of known risk factors.

Methods: Socio-demographic, clinical, radiographic and microbiological variables were analysed in 681 tuberculosis cases diagnosed between 2007-2013. The patients are mainly Portuguese-born Caucasians infected with lineage 4 Mycobacterium tuberculosis strains. A cohort of 240 pulmonary tuberculosis patients without significant comorbidities was selected and a clinical scoring system was developed based on a multiple logistic regression analysis of prognostic variables with six-month mortality as the outcome measure.

Results: The factors significantly associated with death were increasing age, alcohol abuse, highly symptomatic disease, hypoxic respiratory failure, low hemoglobin, high C-Reactive Protein, lung cavitation >4 cm, bilateral alveolar consolidation, pleural effusion and overall advanced disease on chest X-ray evaluation. After stepwise logistic regression, only four independent variables were retained in the final model: age ≥65 years (OR 5.17, 95% CI 1.85-14.56), hemoglobin <12 g/dL (OR 4.15, 95% CI 1.47-11.76), bilateral alveolar consolidation (OR 7.76, 95% CI 1.95-30.89) and pleural effusion (OR 4.53, 95% CI 1.63-12.57). A clinical score assigning one point for each of these variables was derived, allowing patients stratification with low-risk (score 0 to 1) and high-risk (score ≥2) for death. Scores of 0, 1, 2, 3 and 4 points were associated with a mortality of 0%, 2.2%, 12.7%, 36% and 75%, respectively. The ROC curve demonstrated a good fit (AUC: 0.85; 95% CI 0.77-0.92).

Conclusion: We provide a new clinical scoring system to stratify low risk pulmonary tuberculosis patients. This prognostic score may help clinicians decide which patients should be closely supervised during treatment.

![Survival probability chart](chart.png)