

Assessing the performance of the scoring for the use of antiviral therapy to prevent COVID-19 disease progression in primary care setting

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ABSTRACT

Introduction: Nirmatrelvir/ritonavir (Paxlovid) was approved in December 2021 for infected individuals at high risk of progressing to severe COVID-19 and require hospitalization. A scoring was established in the local COVID-19 treatment guideline to select those infected and at high risk at primary care setting for Paxlovid therapy. The scoring quantified risk based on age, comorbidities, vaccine doses, body mass index (BMI), and chest radiograph changes. This study aimed to assess the performance of the scoring and parameters. **Methods:** A case was an infected individual who progressed and being hospitalized. A total 551 patients (98.7% symptomatic infections without pneumonia and 1.3% with mild pneumonia) were recruited including 260 (47.2%) cases and 291 (52.8%) controls between January and February 2022. Receiver-operating-characteristic (ROC) was applied to investigate performance and optimal cut-points for the scoring, as well as individual parameter. **Results:** The existing scoring presented a poor accuracy of 65.0% with 3 as the cut point score. The accuracy can be improved to 70.0% when using 2 as the cut point score. The accuracy would improve further to 74% by modifying the age cut point from 60 to 35 years, BMI from 30.0 to 35.0 kg/m² and applying 100 days as the cut point for duration from the last vaccine dose. Hypertension, cardiovascular diseases, and chronic lung diseases presented a relatively high risk for disease progression and hospitalization, therefore should be assigned more points. **Conclusion:** The existing scoring was suboptimal and should be optimized by incorporating new cut points for age, BMI and vaccine duration, and giving more weightage to more significant comorbidities.