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P2018 Renal impairment increases the risk of thrombocytopaenia and anaemia during prolonged treatment with linezolid

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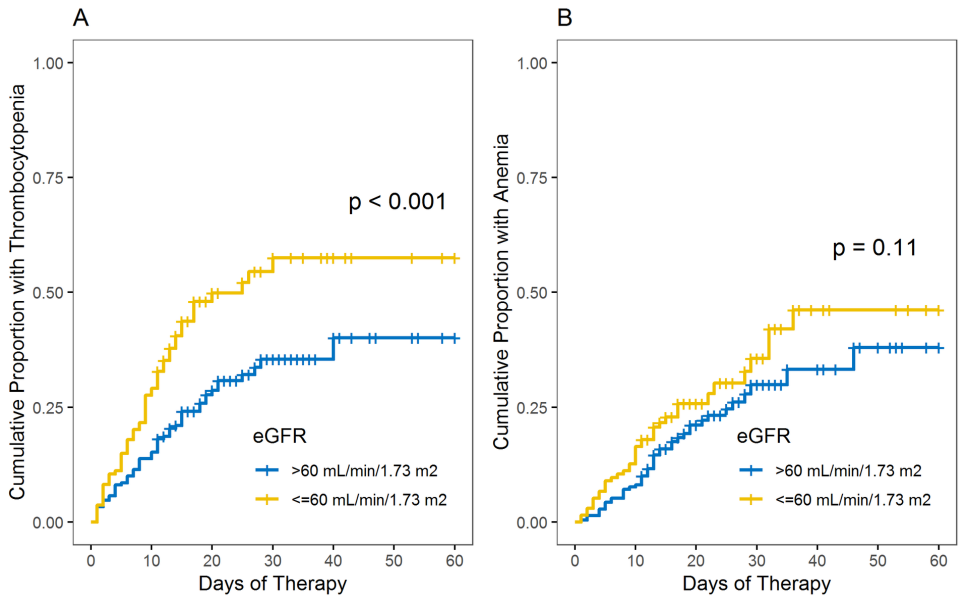
Background: The clinical utility of linezolid is hindered by hematologic toxicities typically observed after 10-14 days of therapy. Observational data suggest a higher risk for hematologic toxicities in renal impairment but have not consistently accounted for potential confounders. Our aim was to quantify the independent association of renal impairment on thrombocytopenia and anemia with prolonged linezolid treatment.

Materials/methods: This was a single-center, retrospective study of adults (≥ 18 years) treated with linezolid. Inpatient encounters with linezolid administration were identified and discharge prescriptions were captured to quantify the treatment duration. The first encounter per patient with ≥ 10 days of treatment was eligible. Exclusion criteria included incomplete laboratory data, severe baseline hyperbilirubinemia or neutropenia, and baseline platelet or hemoglobin values greater than two-fold below the lower limit of normal. Patients were stratified by estimated glomerular filtration rate (eGFR) into those with and without baseline renal impairment (eGFR < 60 mL/min/1.73 m^2). Co-primary outcomes were the frequency of thrombocytopenia and anemia, defined as 25% reductions from baseline, between renal groups. Cox proportional hazard models were used to control for confounding conditions and variable follow-up periods.

Results: The study enrolled 344 patients, 134 (39.0%) with and 210 (61.0%) without renal impairment. The median [IQR] treatment duration was 21 [14, 32] days. Patients with renal impairment were older (59 ± 15 vs 50 ± 17 years, p < 0.001), had higher Charlson Comorbidity Index values (5 [3-7] vs 3 [1-7], p < 0.001), and had lower baseline platelets (231 ± 109 vs 311 ± 166 k/µL, p < 0.001) and hemoglobin (9.0 ± 1.7 vs 9.6 ± 1.9 g/dL, p = 0.003). In unadjusted analysis, thrombocytopenia (Figure Panel A), but not anemia (Figure Panel B), occurred more frequently in patients with renal impairment. In multivariable analysis, eGFR < 60 mL/min/1.73 m^2 was independently associated with both thrombocytopenia (aHR 1.77, 95% CI 1.21-2.59) and anemia (aHR 1.90, 95% CI 1.19-3.04).



multiple_plots

Conclusions: Renal impairment is associated with an increased risk of hematologic toxicity among patients receiving prolonged linezolid treatment. Further study of linezolid dose adjustment in renal impairment is warranted to mitigate this risk.