

Letter to the Editor

Linezolid-Induced Myelosuppression for Prosthetic Joint Infection in Patients Aged \geq 75 Years

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To the Editor,

Linezolid, an oxazolidinone antibiotic, is recommended for prosthetic joint infection (PJI);¹ however, myelosuppression is a characteristic side effect,² and information on PJI in patients aged \geq 75 years is scarce. We retrospectively investigated linezolid-induced decreases in platelet, hemoglobin, and neutrophil counts in older adults (\geq 75 years) who developed PJI.

We enrolled 17 patients aged \geq 75 years who received linezolid for PJI between February 2017 and November 2020. Data on age, linezolid therapy duration and dose, myelosuppression, baseline, and lowest counts during 1 and 2 weeks after linezolid therapy were compared and severity was assessed using Common Terminology Criteria for Adverse Events (CTCAE) version 5.0. Results are shown as median or number of patients (range or %) with $p < 0.05$ indicating statistical significance. This study was conducted with the approval of the ethics committee of our institution.

Patients aged 82.0 (75.3–93.8) years received linezolid therapy for 22.0 (2.0–43.0) days at a 1200-mg/day dose. The platelet and hemoglobin counts recovered to baseline values at 1 and 2 weeks after treatment, respectively. No significant differences were noted in

neutrophil counts at lowest and at 1 and 2 weeks after linezolid treatment (Figure 1). The incidence rates of myelosuppression severity and linezolid therapy duration when the lowest values were attained were as follows: platelet were 18.5 (16–21) days in two grade 1 cases (11.8%); hemoglobin were 22.5 (11.0–28.0) days and 17.5 (1.0–24.0) days in six cases (35.3%) each of grade 2 and 3; and neutrophil were 21.0 (14.0–27.0) days in five grade 1 cases (29.4%), and 28.0 and 17.0 days in one case (5.9%) each of grades 2 and 3, respectively. All patients who developed myelosuppression were subsequently followed up without any special treatment.

In patients with PJI aged \geq 75 years, linezolid therapy resulted in a high rate (70.6%) of grade \geq 2 reduction in hemoglobin count. In a study by Moraza et al., linezolid-induced hemoglobin reduction was 16.0% in grade 2 and 8.0% in grade 3.³ Our results were higher than those reported by Moraza et al., because their study had younger median patient age (73 years) and shorter linezolid therapy duration (7.5 days). Low linezolid-clearance rates were correlated with decline in platelet counts and hemoglobin levels.⁴ However, in this study, we found no significant difference in creatinine clearance between the patients with grade \geq 2 hemoglobin reduction and other patients ($p = 0.188$). Factors other than renal function may influence hemoglobin reduction.

Therefore, when using linezolid for PJI in older adults (\geq 75 years), hemoglobin count reduction due to linezolid-induced myelosuppression should be monitored.

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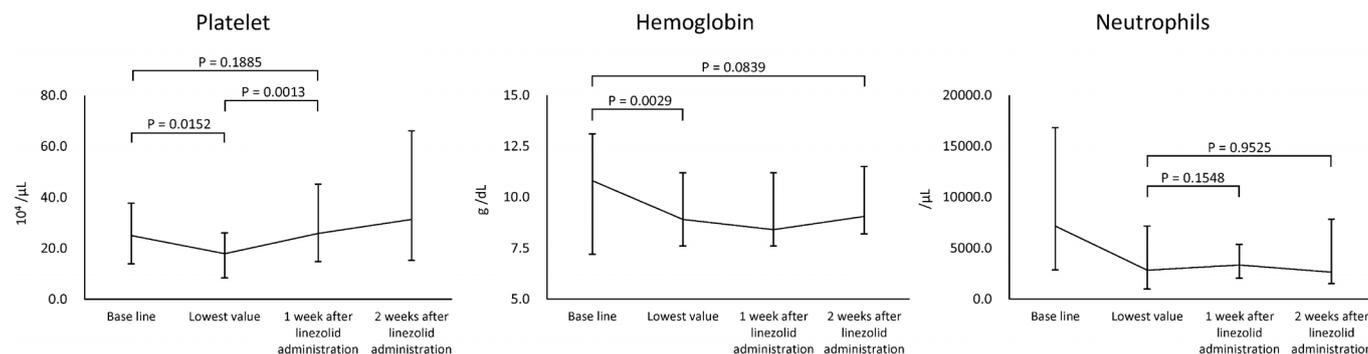


Figure 1. Linezolid administration and changes in platelet, hemoglobin, and neutrophil counts.

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Conflict of interest statement

The authors declare no conflict of interest.

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