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Introduction:
This study examined the efficacy and safety of landiolol, an ultra-short-acting β1-blocker, for treating sepsis-related tachyarrhythmia, according to patient background characteristics.

Methods:
The J-Land 3S study (JapicCTI-173767) was conducted in patients with sepsis, diagnosed according to the Sepsis-3 criteria, and tachyarrhythmia (atrial fibrillation, atrial flutter, or sinus tachyarrhythmia). The patients had a mean heart rate of ≥100 beats/min and required catecholamine administration to maintain a mean blood pressure of ≥65 mmHg. The efficacy endpoint was the percentage of patients whose heart rate could be controlled within 60–94 beats/min at 24 h of registration. The safety endpoint was the incidence of adverse events within 168 h of registration. Subgroup analyses of efficacy and safety were performed after stratifying the patients according to various patient background characteristics.

Results:
A total of 151 patients were randomized, 76 to landiolol and 75 to the control group. The efficacy endpoint, percentage of patients with a heart rate of 60–94 beats/min at 24 h of registration, was significantly higher in the landiolol group (54.7% vs 33.3%; Mantel–Haenszel test: p = 0.0031). The incidence of adverse events was 63.6% and 59.5% in the landiolol and control groups, respectively, and there was no difference between the two groups. Most adverse events were related to sepsis or septic shock. The subgroup analyses showed that no patient background characteristic clearly affected the efficacy and safety of landiolol.

Conclusion:
Landiolol is a well tolerated and effective therapeutic agent for controlling heart rate in patients with sepsis-related tachyarrhythmias; its safety and efficacy were not affected by the patient background characteristics investigated.