

High treatment success rates among pediatric patients treated with new regimens for drug-resistant TB

Tea Madzgharashvili*¹, Zaza Avaliani¹, Argita D. Salindri², Henry M. Blumberg^{3, 4, 5}, Russell R. Kempker³, Marcos C. Schechter³, Nino Lomtadze^{1, 6},

Shota Rustaveli national scientific foundation of Georgia, Tbilisi

Background: Children and adolescents represent ~2.5% of all persons with rifampicin-resistant or multidrug resistant tuberculosis (MDR/RR-TB) in the country of Georgia. With the availability of the new WHO guidelines for management of TB in children, we aimed to describe final and post-treatment outcomes among children with MDR/RR-TB treated with bedaquiline, delamanid and/or linezolid containing regimens in comparison with previously used second line drugs (SLDs) regimen.

Methods: We conducted a retrospective study of pediatric patients (≤ 18 years) treated for MDR/RR-TB in Georgia from 2009 to 2024. We defined “new regimen” as regimens that contained Bdq (bedaquiline), Lzd (linezolid), and/or Dlm (delaminid), (used between 2017 and 2024) and “traditional SLDs” as regimens that did not contain these drugs (used between 2009 and 2016). We defined successful final treatment outcome as treatment completion or cure at the end of therapy. We defined “sustained treatment success” as being free of TB and alive at 12 month safer successful treatment. We used bivariate analysis to estimate the associations between new regimens and study outcomes.

Results: 148 patients with MDR/RR-TB who had a treatment outcome recorded were included. Forty-seven (32%) patients received new regimens (all regimens included at least one new drug, 34 Delamanid, 18 Linezolid, 11 Bedaquiline) and 101 (68%) received traditional SLDs. Successful final treatment outcome was reported among 46 (98%) patients who received a new regimen and 81 (80%) patients who received traditional SLDs (RR=1.23; 95% confidence interval [CI] 1.10 - 1.36). Among 127 patients with successful final treatment outcomes, sustained treatment success was reported among 46 (100%) patients who received a new regimen and 78 (96%) patients who received traditional SLDs (RR=1.04; 95% CI 1.00 - 1.08).

Conclusions: Among pediatric patients with MDR/RR-TB regimens with bedaquiline, delaminid, and/or linezolid, higher treatment success and relapse free post-treatment rates were observed, compared to traditional SLDs.