Treatment of children and adolescents with MDR/RR-TB regimens containing bédaquiline and delamanid: results from the endTB observational study

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Background

Children and adolescents with multidrug-resistant and rifampicin-resistant tuberculosis (MDR/RR-TB) are under diagnosed and under treated. Few reports exist on the treatment of children and adolescents with newer TB drugs. We assessed the safety and effectiveness of MDR/RR-TB regimens containing bedaquiline and delamanid among children and adolescents.

Methods

The endTB observational study is a prospective, multi-site study. Children and adolescents aged 19 years and below are included in this analysis. We report the frequency and outcomes of clinically relevant adverse events of special interest (AESI) and end of treatment outcomes.

Results

A total of 190 children and adolescents from 14 countries were included (< 5 years: 4, 5-14 years: 20, 15- 19 years: 166), 47% had BMI < 18.5 Kg/m2, 6% were HIV positive, 68% previously treated with second-line drugs, 52% had fluoroquinolone resistance, 71% cavity or bilateral disease on chest Xray. Initial treatment contained bedaquiline only (51%), delamanid only (39%) or both (10%) as part of a multidrug regimen. Other frequently used drugs were linezolid (82%), cycloserine (71%), clofazimine (70%) and fluoroquinolones (69%). End of treatment outcomes were 85% success, 5% death, 4% failure, 4% lost to follow and 2% not evaluated. Most common clinically relevant AEIs were peripheral neuropathy, electrolyte depletion and hearing loss with 26 (16%), 24 (15%) and 11 (7%) patients experiencing at least one event respectively. Two patients (1%) experienced clinically relevant QT interval prolongation which resolved without sequelae. Among patients experiencing hearing loss 4 (36%) resolved, 4 (36%) resolved with sequelae, 1 (9%) did not resolve, and 2 (18%) had unknown outcomes. Among patients experiencing peripheral neuropathy, 14 (54%) resolved, 9 (35%) resolved with sequelae, 3 (11%) did not resolve.

Conclusion

Treatment of MDR/RR-TB with bedaquiline and delamanid is effective and well tolerated amongst children and adolescents. All oral regimens should be scaled up as recommended by WHO for these age groups.

All oral short treatment regimens containing bedaquiline and delamanid should be scaled up in children and adolescents with drug-resistant tuberculosis.