Prolonged QTc due to Moxifloxacin in overcoming Multi-Drug Resistant-Tuberculosis

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Introduction: According to World Health Organization on 2017, Indonesia was one of the country with the high incidence of Multi-Drug Resistant Tuberculosis (MDR-TB) about 2.2/100,000 population. The use of Moxifloxacin in the shorter MDR-TB regimen has been known to be associated with prolongation of corrected QT interval (QTc). The QTc prolongation was an independent predictor for life-threatening arrhythmia, such as; Torsade de Pointes (TdP), ventricular tachycardia (VT), and ventricular fibrillation (VF). Most of the QTc prolongation was asymptomatic, so routine ECG monitoring was required during the use of Moxifloxacin. Regarding to WHO guideline of MDR-TB, the treatment with Moxifloxacin must be stop if the QTc prolongation >500 ms.

Methods: We retrospectively reviewed 16 patients (mean age 42.38 years) with MDR-TB treated for >1 month with Moxifloxacin in the shorter regimen of MDR-TB. QTc changes, adverse cardiac events, and death were evaluated.

Result: Massive QTc prolongation (QTc >500 m sec) were observed in 2 patients (12.5%) without any clinical cardiac events, prolonged QTc (QTc >450 ms) were observed in 3 patients (18.8%), borderline QTc prolongation in 2 patients (12.5%) and normal QTc in 7 patients (43.8%). Two patients (0.13%) lost to follow-up, no patients experienced adverse cardiac events, 2 patients (0.13%) died of respiratory failure.

Conclusion: Moxifloxacin was associated with asymptomatic QTc prolongation, so the use of Moxifloxacin in the shorter MDR-TB regimen is relatively safe.