Bedaquiline, a new drug for TB for treatment of drug resistant Tuberculosis

Bedaquiline is a new antituberculosis drug discovered at Janssen Pharmaceutica and manufactured by Johnson and Johnson. It is a diarylquinoline which targets the proton pump for ATP synthase of Mycobacterium tuberculosis. This is an important enzyme of a cell. Inhibition of the enzyme results in death of Mycobacterium tuberculosis, the causative infectious bacteria . It also suggests that the target of bedaquiline is different from the quinolones which are prescribed to treat tuberculosis. Quinolones target DNA gyrase in the cell. Bedaquiline has recently been approved by FDA to treat multi-drug resistant tuberculosis and more extensively drug resistant tuberculosis. The approval for the drug is based on reduction in load of bacilli in sputum cultures of treated and placebo controls. Recently Dr Udwadia from Hinduja Hospital, Mumbai reported first of the 12 XXDR TB patients to be declared as cured after treatment with Bedaquiline. The patient was resistant to most of the 12 anti-TB medicines.

In the phase-II clinical trial, 11.4% deaths occurred in patients taking bedaquiline compared to 2.5% in control groups. In addition to this observation, bedaquiline has been found to cause nausea, headache, joint and chest pain. It can also affect the cardiovascular system. In view of these toxic observations FDA has approved bedaquiline as part of combination therapy to treat multidrug resistant tuberculosis when other alternatives are not available.

References

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