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Letter to the Editor Open Access

Relevance of the GeneXpert Test for the Diagnosis of TB in Chronic Hemodialysis Patients in Casamance, South of Senegal

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Letter to the Editor

Infectious manifestations, particularly tuberculosis, are very common in patients under chronic hemodialysis, due to the alteration of the immune system associated with chronic renal insufficiency, and exacerbated by dialysis. The warning signs are somewhat specific, hence a delay in diagnosis and therapy. The GenXpert as a new test is a major breakthrough in tuberculosis (TB) control by contributing to the rapid diagnosis of TB disease and drug resistance. The test simultaneously detects *Mycobacterium tuberculosis* complex (MTBC) and resistance to rifampin (RIF) in less than 2 hours. In comparison, standard cultures can take 2 to 6 weeks for MTBC to grow and conventional drug resistance tests can add 3 more weeks. The GeneXpert is a single-use disposable test cartridges that can operate in temperatures between 15 and 30°C, even in high humidity. Since the approval of this test by the Strategic and Technical Advisory Group for TB (STAG-TB) in September 2010, the World Health Organization (WHO) has strongly advocated for a rapid and large-scale implementation [1].

Skin testing in haemodialysis patients is almost always negative due to immune deficiency [2]. Detection of *Mycobacterium tuberculosis* (MTb) from chronic hemodialysis patients' body fluids has little contributory effect [3].

The GeneXpert test allows a much faster diagnosis, with relatively good sensitivity and specificity results [4]. The GeneXpert test is a major advance in TB diagnostic testing, but has limitations, including the limited shelf-life of the diagnostic cartridges, some operating temperature and humidity restrictions, requirement for electricity supply, unknown long-term robustness, and the need for annual servicing and calibration of each machine [5]. A study conducted in Casamance, Southern Senegal, revealed 7 tuberculosis cases, a prevalence of 23.33% in 30 chronic hemodialysis patients between January 1, 2015 and March 31, 2016.

Chest radiography was contributory in 1 case showing reticular/nodular opacity in the left apex. The Tuberculin Skin Test (TST) performed in all patients turned out to be negative. Direct AFB examination of sputum and culture on Lowenstein medium was positive only once. The GeneXpert test confirmed TB disease in 6 cases (85.8%) (1 case from pleural fluid samples; 2 cases from ascitic fluid samples; and 3 cases from pleural and peritoneal fluid samples).

Definitive diagnosis can be obtained by histological identification of epithelioid and giant cell granuloma. Unfortunately, this is only available in Dakar, 450 km from Casamance.

Extra-pulmonary tuberculosis was observed in 6 cases (85.8%), peritoneal in 2 cases (28.6%), pleural in 1 case (14.3%), and multifocal (pleural and peritoneal) in 3 cases (42.9%). All studies are unanimous about the high incidence of extra-pulmonary tuberculosis in hemodialysis [6].

Clinical manifestations of tuberculosis among chronic hemodialysis patients are rather specific. The damage is especially non-pulmonary. The GeneXpert assay remains a reliable diagnostic tool; it reduces the mortality rate often attributed to late diagnosis especially in low-income countries where the technical platform is limited.

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