PERFORMANCE OF QUANTIFERON-TB GOLD TEST IN SCREENING FOR LTBI AND DURING ANTI-TNF TREATMENT

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Background: All candidates for anti-TNF treatment should undergo screening for latent TB infection (LTBI). BCG vaccination may lead to positive tuberculin skin test (TST) and false diagnosis of LTBI. Conversly, some immunosuppressed patients may not respond to TST. QuantiFERON TB-Gold (QFT-G) is a new screening tool that uses peptide coctail simulating ESAT-6, CFP-10 and TB7.7(p4) proteins to stimulate cells in heparinised whole blood. Detection of interferon-g (IFN-g) by ELISA is used to identify in vitro responses to these peptide antigens that are specifically associated with Mycobacterium tuberculosis (MT) infection and do not cross-react with immunity induced by BCG vaccination.

Objectives. To assess the performance of QFT-G test for screening before the initiation and also during anti-TNF treatment.

Methods. QFT-G test (in-tube methods) was used to determine IFN-g production after stimulation with MT specific antigens as well as with non-specific mitogen. Altogether 52 patients were investigated (AS=30, RA=13, adult JIA=5, PsA=4). Ten AS patients completed assessment prior anti-TNF and also after 2 and 12 weeks (before 2nd and 4th infliximab infusions). Twenty six had QFT-G only before they started anti-TNF, 6 before and during therapy and 10 patients only during the treatment. Tuberculin 2TU was used for TST and results were read after 48-72 hours.

Results: Out of the total 78 tests, four (5%) were indeterminate (2 high spontaneous IFN-g production, 2 low mitogen response). Three out of these 4 patients were on combined immunosuppression. Four patients (AS3, RA1) were positive in QFT-G in the screening. All 4 had negative TST. From 26 patients investigated during the treatment, five have become positive. In 3 of them initial pre-treatment status was known and QFT-G was negative, however all 3 were positive in TST at 16, 7 and 10 mm. Two of them have become QFT-G positive before second infliximab infusion, 1 before the 4th infusion. The remaining 2 positive patients had longstanding treatment with adalimumab or etanercept. In those patients where TST was available and was positive, only 1 was also positive for QFT-G. In those who were TST negative, 2 were positive for QFT-G. None of the patients developed TB. In patients who were on infliximab and repeatedly investigated, IFN-g production after the mitogen stimulation insignificantly increased: 5.2+-4.1 IU/ml, 6.9+-1.5, and 7.6+-3.1 before treatment, after 2, and 12 weeks respectively.

Conclusion: There is scarce information for QFT-G use before and during anti-TNF treatment. Our first experience shows that QFT-G may be more sensitive and specific for LTBI detection than TST, although its real usefulness for screening before anti-TNF treatment needs to be assessed in long-term studies. QFT-G is valuable once anti-TNF has been initiated as we detected relatively high number of positive patients who may be in danger of TB development. No decrease of the mitogen induced capacity in IFN-g production shows that test can be safely used during anti-TNF treatment.