Vaccines and immunity

PO - (8485) - INTERFERON GAMMA RESPONSE KINETICS IN TUBERCULOSIS PATIENTS AND HOUSEHOLD CONTACTS IN THE GAMBIA

Mbayo, Georgetta (Gambia); Garand, Mathieu (Gambia); Donkor, Simon (Gambia); Wathuo, Miriam (Gambia); Ottenhoff, Tom (Gambia); Owolabi, Olumuyiwa (Gambia); Sutherland, Jayne (Gambia)

1 - Vaccines and Immunity Theme, Medical Research Council (MRC) Unit at London School of Hygiene and Tropical Medicine, Banjul, The Gambia; 2 - Department of Infectious Diseases, Leiden University Medical Center, The Netherlands

Background – Methods which use Mycobacterium tuberculosis (Mtb)-specific antigens to measure IFN-γ responses (IFN-γ release assays (IGRA)) have been useful in detecting Mtb infection in exposed individuals. We assessed infections in TB cases and their exposed household contacts (HHC) using an in-house optimized IGRA, the QuantiFERON-TB Gold in Tube (QFT-GIT) and QFT-Plus (QFT+).

Methods – For the in-house IGRA, we analysed 266 active TB patients and 759 HHC (256 tuberculin skin test positive (TST+) and 503 TST-) at baseline and 6 months. In a separate study we assessed QFT-GIT and QFT-plus responses using samples from 72 TB cases and 69 HHC at baseline. QFT-GIT has 3 Mtb-specific antigens: ESAT6, CFP10 and TB7.7 while QFT-plus has long and short peptides of ESAT-6 and CFP-10, designed to induce CD4+ and CD8+ T cell responses respectively.

Results – IFN-γ responses were lowest in TST- compared to both TST+ and TB patients at baseline (p<0.0001 for both), with 32% IGRA+ compared to 76% and 73%, respectively using in-house IGRA. HHC sleeping in the same room with TB patient had a significantly higher IGRA conversion rate by 6 months compared to those sleeping further away (p=0.0004). We also observed a significant decline in IGRA IFN-γ levels by 6 months of TB treatment (p<0.0001).

Among QFT positive TB patients, smear-positive was 57% and culture positive was 62%. The IFN-γ concentration between TB1 and TB 2 was similar, while, QFT-GIT had a significantly higher response than TB 1 and TB 2 for both TB patients (p=0.003) and HHC (p=0.0005).

Conclusion – Our findings show that IGRA conversion is significantly increased in HHC with highest exposure but that IGRA positive cannot predict risk of progression to active TB. We also found that QFT-GIT was quantifiably better than QFT plus in our setting, limiting the ‘grey zone’ of indeterminate results.