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Title: A study of immunogenetic markers associated With tuberculosis and diabetes mellitus

Meenakshi 20757 Ponnana mnaidu87@gmail.com , Ramya 20758 Sivangala stramya1115@gmail.com , Shruthi 20759 Thada shruthi.thada@gmail.com , Lavanya 20760 Joshi lavanya.ou@gmail.com , Vijaya Lakshmi 20764 Valluri vijayavalluri@hotmail.com and Suman Latha 30659 Gaddam sumanlathag@yahoo.com . [1] Immunology, Bhagwan Mahavir Medical Research Centre (BMMRC), Hyderabad, Andhra Pradesh, India and [2] LEPRA, Blue Peter Research Centre (BPRC), Hyderabad, Andhra Pradesh, India .

Body: Diabetes mellitus (DM) is an important predisposing factor for tuberculosis (TB). The rising prevalence of DM in TB-endemic areas may adversely affect TB control.Hence we hypothesized that this susceptibility to mycobacterial infection is due to a defective Th1-cytokine response. The in vitro T cell assays were investigated in New Sputum Smear Positive (NSS+) New Sputum Smear Negative(NSS-),TB with DM(TBDM),DM patients and Healthy Controls (HC) in response to the r32Kda Ag BCG. IFN-γ & IL-10 levels in culture supernatants and serum Vitamin D levels were estimated by ELISA (pg/ml). ARMS-PCR was carried out to study the SNPs.The mean proliferative responses were low in all patients vs HC (1.07±0.33; 1.2±0.59;1.15±0.5;1.16±0.57 & 1.6±0.97).The mean IFN-γlevels were significant for (NSS+ 6.74±4.14; 23.66±14.96; p<0.0004 & 9.37±4.44; 23.66±14.96 p<0.01 in NSS- & 6.17±4.42; 32.08±8.8 p<0.03 in TBDM); for IL-10 (9.88±3.45; 34.18±11.74 p<0.04 in NSS+ 70.74±16.5; 14.37±4.14 p<0.01 in TBDM & 69.01±15.29; 13.99±3.9; p<0.01 in DM) compared to HC.Most of the patients had insufficient (24-74pg/ml) levels of Vitamin D where NSS+ patients have shown deficient levels. AA & AT genotypes of IFN-γ (p<0.009; 95% C.I 0.266-0.853; p<0.032 95% C.I 1.038-2.653 in NSS+ & p< 0.037 95% C.I. 0.261-0.991; p<0.001 95% C.I. 1.349-4.208 in DM); GA & GG genotypes of IL-10 -1082(G/A) were significantly associated in all the groups of patients (p<0.0001). The study may help to identify the inflammatory cytokine markers in diabetics who are prone to develop TB.