European Respiratory Society
Annual Congress 2012

Title: Performance of IP-10, an interferon gamma release assay and tuberculin skin test in children at high risk for tuberculosis infection

Dr. Virginia 18437 Amanatidou virna_amanatidou@yahoo.gr MD [1], Dr. Myrsini 19407 Mavrikou mersinimavrikou@yahoo.com MD [2], Ms. Katerina 19408 Trochoutsou ktrochoutsou@gmail.com [3], Ms. Kiriaki 19409 Benetatou kiriakiben@yahoo.gr [1], Dr. Elena 19410 Critselis ecritselis@yahoo.com [1], Prof. Nikolaos G. 19412 Papadopoulos ngpoffice@allergy.gr MD [3] and Prof. Maria N. 19413 Tsolia matsolia@ath.forthnet.gr MD [1]. [1] Second Department of Paediatrics, University of Athens, School of Medicine,"P. and A. Kyriakou" Children's Hospital, Athens, Greece, 11527 ; [2] 1st Department of Paediatrics, "P. and A. Kyriakou" Children's Hospital, Athens, Greece, 11527 and [3] Allergy Department, Second Paediatric Clinic, University of Athens, School of Medicine, Athens, Greece, 11527 .

Body: Background : Studies propose Interferon-γ Inducible Protein 10 (IP-10) as a promising diagnostic marker for tuberculosis (TB) infection, with comparable accuracy to the QuantiFERON-TB Gold In Tube Test (QFT-IT). Aims : We explored the diagnostic performance of IP-10 in paediatric TB infection and compared it with the established QFT-IT and tuberculin skin test (TST). Methods : The study was conducted among 179 children (active TB n=53, latent TB infection n=64, controls n=62; mean age 6.3±4 years). IP-10 concentration was determined using ELISA, in supernatants from QFT-IT tubes. The diagnostic performance of IP-10 and QFT-IT was evaluated using ROC curve analysis. Agreement between tests was evaluated with the kappa (κ) statistic. Results : The area under the curve (AUC) for IP-10 -assessed as continuous variable- was 0.79 (95%CI 0.7-0.88). A cut-off point of 1221 ng/ml for IP-10 had 85% sensitivity and 75% specificity to detect active TB. QFT-IT had higher AUC (0.84; 95%CI 0.75-0.93) however the difference did not reach the cut-off point of statistical significance (z=0.86, p=0.19). When introduced as categorical variable, QFT-IT performed significantly better than IP-10 (AUC 0.88, 95%CI 0.83-0.94 vs. 0.77, 95%CI 0.7-0.85 respectively; p=0.01) in detecting TB infection. TST test had equal performance to QFT-IT but it was superior to IP-10. Agreement was substantial between IP-10 and QFT-IT (κ=0.61), between QFT-IT and TST (κ=0.65) and moderate between IP-10 and TST (κ=0.48). Conclusion : IP-10 could be used as an additional TB biomarker, in combination with IGRAs, to increase diagnostic accuracy of TB infection in high risk paediatric populations.