IMMUNOTOXICOLOGY IN OCCUPATIONAL AND ENVIRONMENTAL CIRCUMSTANCES

Aim of the session To discuss immunotoxicological alterations caused by occupational and environmental substances

Methods Blood specimens were obtained from 27 healthy volunteers (HV), 29 pleural plaque-positive people (PL) and 30 MM patients. Plasma and PBMC were assayed for cytokines and expression of cell surface molecules on CD4+ (Th), CD8+ (CTL), CD56+ (NK) lymphocytes and monocytes by luminex and flow cytometry. The part of PBMC was sorted into the four cell populations, which were assayed for mRNAs in fresh or after stimulation by real-time-PCR. The results were examined by multiple regression analysis to obtain the formulae of the scores statistically.

Results Both of MM and PL showed decreases in CXCR3 and NKP46 on T and NK cells respectively and increase in granzyme B mRNA in stimulated CTL. IFN-λ and IL-17A in plasma were high in PL, whereas inflammatory cytokines including IL-6 and IP-10 were high in MM. Also, MM showed increase in CTLA-4 on Th cells. The 33 parameters with significant differences were examined by multiple regression analysis. The formulae of scores predictive for MM (M-score), both of MM and PL meaning asbestos exposure (A-score) and PL (P-score) were calculated and composed of the three parameters respectively. Every score showed a good ROC curve with sensitivity and specificity near 0.9.

Conclusion The findings of similarity between PL and MM might reflect alteration caused by inhaled asbestos. The high Treg marker with high inflammatory cytokines might be linked to MM development. Finally, we could obtain the three scores showing good ROC curves, which might be valuable to screen MM and asbestos exposure.

SCORES PREDICTIVE FOR ASPBESTOS EXPOSURE, MALIGNANT MESOTHELIOMA AND PLEURAL PLAQUE ON THE BASIS OF COMPREHENSIVE IMMUNOLOGICAL ANALYSIS

Introduction Our findings about immunological profiles resulted from asbestos exposure and related with malignant mesothelioma (MM) allowed us to think a possibility to construct immunological scoring system to screen mesothelioma and asbestos exposure. Therefore, the present study comprehensively investigated immunological characteristics of plasma and peripheral blood mononuclear cells (PBMC) to obtain the formulae of the scores statistically.

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EXPOSURE TO SUB-10NM PARTICLES EMITTED FROM A BIODIESEL-FUELED DIESEL ENGINE: IN VITRO TOXICITY AND INFLAMMATORY POTENTIAL

Introduction The inflammatory effects of organic sub-10nm particles generated and emitted from a diesel engine fueled with a biodiesel and a commercial diesel oil are analysed in this paper. Diesel combustion is the major sources of ultrafine