Mechanisms of lung infection in the community and hospital setting

S77 COMPARTMENTALISATION OF SURFACE TRIGGERING RECEPTOR EXPRESSED ON MYELOID CELLS-1 (TREM-1) IN VENTILATOR-ASSOCIATED PNEUMONIA (VAP)


Introduction. Biomarkers have been investigated in order to speed up diagnosis of VAP, a common condition in ICU patients. TREM-1 is a protein involved in amplification of immune responses to bacterial and fungal infection and exists as soluble and surface forms.\(^1\)\(^2\) The diagnostic value of soluble TREM-1 in broncho-alveolar lavage fluid (BALF) in VAP is controversial.\(^3\) Therefore the utility of surface TREM-1 for diagnosing VAP in a two-compartment model (BALF and blood) was investigated.

Methodology. Paired blood and BALF were obtained in consenting patients in the following groups: (1) Ventilated patients with VAP diagnosed on semi-quantitative microbiology and Clinical Pulmonary Infection Score (CPIS); (2) Ventilated patients without sepsis; (3) Day-case bronchoscopy patients without evidence of infection. Flow cytometry was performed on cell pellets derived from simultaneous BALF and blood samples. Surface TREM-1, CD11b (immune cell activation marker) and L-selectin (immune cell migration marker) levels were measured on monocytes and neutrophils. At the same time an inflammatory cytokine panel (comprising IL-1β, IL-6, IL-8 and soluble TREM-1) was measured by ELISA in the paired blood and BALF samples.

Results. Expression of TREM-1 and CD11b on monocytes were significantly elevated in BALF samples obtained from the VAP patient group. There was no change in blood surface TREM-1 and CD11b levels between the different patient groups. The BALF/blood ratio of monocyctic TREM-1 increased the discrimination between...