

P045 Measurement of nitrated proteins in rheumatoid arthritis by ELISA

Emma Taylor, Richard Haigh, Anna Murray, David Melzer, Tim Frayling, Jenny Littlechild and Paul Winyard

PMS, Exeter University and Royal Devon & Exeter Hospital, UK

Tyrosine residues can be nitrated by peroxynitrite, to form 3-nitrotyrosine (3-NT). This irreversible reaction represents a marker of inflammation and cell damage. Previous studies using hplc reported elevated 3-NT in serum and synovial fluid (SF) of rheumatoid arthritis (RA) patients. However, the specificity of the technique has been questioned. Using an ELISA, we measured 3-NT in SF and matched plasma from RA patients and plasma from healthy volunteers in order to re-examine 3-NT formation in RA.

3-NT was undetectable in control plasma, but detectable in 30-40% of RA patients. When 3-NT was measurable in synovial fluid (7/19 samples), it was almost invariably measurable in matched plasma (6/19 samples). 3-NT showed trends towards correlations with age of patient (plasma $r=0.389$, SF $r=0.371$), disease duration (plasma $r=0.355$, SF $r=0.369$), erythrocyte sedimentation rate (plasma $r=0.443$, SF $r=0.391$) and C-reactive protein (plasma $r=0.234$, SF $r=0.238$). More samples are required to determine whether these correlations are statistically significant. Neither sample handling time nor anticoagulant affected 3-NT measurement.

3-NT may be a biomarker for an as yet undefined subset of RA patients, which may be of diagnostic or prognostic value. Further studies are required to verify and identify the clinical relevance of these findings.