

P017 Gingival crevicular fluid glutathione in periodontal health and disease

G.R. Brock, M.M. Grant, J.B. Matthews and I.I.C. Chapple

School of Dentistry, University of Birmingham, Birmingham, U.K.

Increasing evidence indicates that oxidative stress is important in the pathobiology of several chronic inflammatory conditions including the periodontal diseases. Our objective was to determine gingival crevicular fluid (GCF) glutathione levels in periodontally diseased and age/sex matched control patients. 30-sec GCF samples (6/subject) were collected from starved, non-smoking volunteers (n=20) with chronic periodontitis or unaffected controls (n=20). GCF volumes were measured prior to elution into stabilising medium and liquid nitrogen storage. GSH and oxidised glutathione were assayed using reversed phase HPLC with fluorimetric detection. Each sample assayed contained an internal standard (γ -glu-glu); external standards were run prior to and on completion of each run. Statistical analysis was by Mann-Whitney U test. Both GSH per 30-sec sample (p =NS) and GSH concentrations (p <0.001) were lower in periodontitis patients (0.26 ± 0.15 nanomoles/30-sec sample; 1.18 ± 0.71 mM) than controls (0.28 ± 0.1 nanomoles/30-sec sample; 1.95 ± 0.57 mM). These data demonstrate high levels of GSH within GCF, which appear to be compromised in chronic periodontitis. Thus, GSH may be important in the extracellular antioxidant and anti-inflammatory defence of the periodontium.