High levels of endogenous PPAR-α activating lipids in woman with chronic widespread pain during acute tissue trauma

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Chronic widespread musculoskeletal pain (CWP) is a significant health problem. The molecular mechanisms involved in developing and maintaining CWP are poorly understood. Central sensitization mechanisms maintained by stimuli from peripheral tissues such as muscle has been suggested. Lipid mediators with anti-inflammatory characteristics such as endogenous ligands of peroxisome proliferator activating receptor-α, oleoylethanolamide (OEA) and palmitoylethanolamide (PEA) are suggested to be regulators of the transmission of nociception from PNS on route towards CNS. In a previous microdialysis (MD) study we reported about levels of PEA and stearoylethanolamide (SEA) in microdialysate collected at 140 min and 180 min after MD probe insertion. In that study no significant difference of lipid concentrations between woman with CWP (N=17) and female healthy controls (CON) (N=19) was observed. The aim of the present study was to investigate the levels of PEA, SEA and OEA in MD samples collected during the first 120 min after probe insertion and explore the association of these levels with different pain characteristics. During sampling of dialysate, pain ratings were conducted using a numeric rating scale (NRS). Pain thresholds were registered from upper and lower parts of the body. OEA and SEA levels were significantly higher in CWP at all time points during the tissue trauma period. NRS correlated with the level of SEA in CWP. The higher levels of the lipid mediators could reflect altered tissue reactivity in response to MD probe insertion or a habitually higher concentration in CWP.

Biography
Niclas Stensson has MSc in Chemistry from Linköping’s University (Sweden) and is at present pursuing PhD studies at Pain and Rehabilitation Center on the University hospital in Linköping. He has been a co-writer to three publications and also had several abstract/poster contributions at international conferences.

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