Quantifying Oxidative Stress and Inflammation in Postmenopausal Sleep Apnea Patients

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Obstructive sleep apnea is characterized by arousals from intermittent airway blockage and is linked to cardiovascular disease. We investigated oxidative and inflammatory markers in postmenopausal female patients with sleep apnea. Postmenopausal women are an understudied group in the context of sleep apnea and cardiovascular disease. Estrogen protects against cardiovascular disease, but issues arise following menopause, whilst replacement therapy can lower cardiovascular risk. Blood samples were drawn before and after a sleep assessment and pre and post a 12-week continuous positive airway pressure treatment regimen. Plasma samples underwent ELISA for inflammatory markers; TNF R1/2, IL-6 and the oxidative stress markers 8-isoprostane and reduced/oxidized glutathione. Plasma values were normalized to total protein, while red blood cell parameters were normalized to hemoglobin. 8-isoprostane was observed, which is indicative of oxidative stress. Reduced and total glutathione levels were correlated but were not related to oxidized glutathione or 8-isoprostane. TNF R2 and IL-6 levels were also high relative to historical controls but were not significantly altered by sleep. These studies highlight the capability to assess oxidation and inflammation in sleep apnea patients.