

Oxidative Stress in Patients with Alzheimer's Disease: Effect of Extracts of Fermented Papaya Powder

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Brain tissue is particularly susceptible to oxidative stress (OS). Increased production of reactive oxygen species (ROS), reduced antioxidant systems, and decreased efficiency in repairing mechanisms have been linked to Alzheimer's disease (AD). Postmortem studies in AD patients' brains have shown oxidative damage markers (i.e., lipid peroxidation, protein oxidative damage, and glycooxidation). Fermented papaya (FPP, a product of *Carica papaya* Linn fermentation with yeast) is a nutraceutical supplement with favorable effects on immunological, hematological, inflammatory, and OS parameters in chronic/degenerative diseases. We studied 40 patients (age 78.2 ± 1.1 years), 28 AD patients, and 12 controls. Urinary 8-OHdG was measured to assess OS. Twenty AD patients were supplemented with FPP (Immunage, 4.5 grams/day) for 6 months, while controls did not receive any treatment. At baseline, 8-OHdG was significantly higher in patients with AD versus controls (13.7 ± 1.61 ng/mL versus 1.6 ± 0.12 ng/mL, $P < 0.01$). In AD patients FPP significantly decreased 8-OHdG (14.1 ± 1.7 ng/mL to 8.45 ± 1.1 ng/mL, $P < 0.01$), with no significant changes in controls. AD is associated with increased OS, and FPP may be helpful to counteract excessive ROS in AD patients.