PET and EEG Topography in Organic Brain Syndromes

M. S. BUCHSBAUM, A. STARR
University of California, Irvine

Thirty consecutive admissions to a Memory Disorder Clinic were studied with 32 channel topographic electroencephalography and a small subsample studied with positron emission tomography. Patients were studied with eyes closed while resting and during an alerting condition, where a story was read to them. EEG was visually inspected for artifacts and spectral analysis done on artifact free 2-second epochs at .4 Hz resolution. Topographic maps were constructed by interpolation. These were contrasted with normal populations by creating: (1) z-score maps on a lead by lead basis; (2) z-score maps from maps in both populations expressed as standard deviate scores; (3) group contrasts using ANOVA; (4) trend surface analysis with third degree polynomials. These different analytic techniques reveal quite different features of the EEG and will be important in exploiting the power of EEG in diagnosis and treatment assessment in dementia.

Simultaneous recording of EEG and ^{18}F-deoxyglucose uptake was carried out in three patients and results will be presented.