W11.04 MIDDLE LATENCY AUDITORY EVOKED POTENTIALS FOLLOWING CORTICAL AND SUBCORTICAL LESIONS.

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We recorded middle latency auditory evoked potentials (MAEPs) in 22 patients with cortical or subcortical lesions. Averages were obtained to 60 dB SL monaural clicks (rate = 13/sec) from three scalp electrodes (C5,Cz, and C6), each referenced to a balanced non-cephalic site (bandpass 3–300 Hz).

Cortical lesions produced variable effect s. Nine patients were studied with unilateral lesions of variable extent that included auditory cortex. Three showed normal MAEPs, two showed ear-of-delivery effects, with reduced P30 amplitudes following stimulation of the ear contralateral to the lesion, four showed both ear-of-delivery effects and amplitude asymmetries, with the P30 reduced over the lesioned hemisphere. Four patients with bitemporal lesions including auditory cortex were studied: two showed normal responses, one showed an amplitude asymmetry, and one an ear effect.

Subcortical lesions produced reliable abnormalities. Of nine patients with thalamic or capsular involvement, one showed only an amplitude asymmetry, two showed ear effects, and six showed both. Implications for possible generator circuits of the P30 component will be discussed.

W11.05 CONTIGUOUS RECORDING OF BAEPs AND VEP IN PREMATURE INFANTS.

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Brain-stem auditory potentials (BAEP) and flash visual evoked potentials (VEP) were recorded from one to five times serially on 56 short-gestation infants of 32 weeks gestational age (GA) or less, (mean age 28.5 weeks GA, mean birthweight 1168.5 grams), while in a neonatal intensive care unit (NICU), as part of a longitudinal follow-up study. Clinical history of each infant, neurological data, and relevant maternal data were recorded as well as serial ultrasound scanning results. Of the 56 infants 21 were female and 35 male; 23 sustained either periventricular haemorrhage (PVL) or subependymal haemorrhage (SEH).

Each infant was recorded at two or three flash intensities during VEP recording. Brain-stem auditory evoked potential recordings were performed at 70 dB hearing level (HL) and 80 dB HL if clear wave formation was not present at 70 dB HL. At post one year several of the infants were followed-up with both VEP and BAEP recordings. The results will be discussed in relation to the diagnostic and prognostic value of BAEPs and VEPs in relation to transient and/or permanent neurological sequelae.

W11.06 SOMATOSENSORY EVOKED POTENTIALS (SEPs) IN PAEDIATRIC NEUROLOGY.

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SEPs appear the least employed of the EPs in paediatrics, yet we find them the most useful; SEPs, spinal SEPs particularly, are more easily recorded in children than adults, children rarely need sedation and SEPs allow noninvasive asses sment of the entire neuraxis in patients who may be poor observers and historians. This paper summarizes our application of SEPs, studied in over 500 paediatric neurological patients. In degenerative and demyelinating disorders SEPs provide an early documentation of CNS abnormalities and allow monitoring of disease progression. This is important in cases that are diagnostic problems such as the hereditary ataxias. In comatose children, particularly post-traumatic, SEPs are valuable in assessing the patient's status and prognosis, far superior to ABRs in both reliability and sensitivity to CNS damage. With spinal cord lesions, SEPs are helpful in localizing as well as determining the extent of damage, often obscured by trauma-related edema. The utility of SEPs in spinal surgery is well established but we have found SEPs useful also with cardiovascular surgery; in both coarctation repairs (which can render the spine ischaemic) and monitoring CNS function in bypass surgery. We have found SEPs to have a valuable role in assessment and diagnosis in paediatric neurology.

W11.07 EAEP, VEP AND EEG STUDIES IN CHILDREN AND ADOLESCENTS WITH CHRONIC RENAL FAILURE. LONG TERM AND SHORT TERM EFFECTS.

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Early auditory evoked potentials (EAEP), pattern shift visual evoked potentials (VEP) and EEG recordings were obtained from 20 boys and 10 girls with chronic renal failure (CRF) aged from 5 to 22 years (average 15.8 years). 18 patients were on hemodialysis, one on chronic peritoneal dialysis, 9 children had received successful kidney transplants and two were treated conservatively. A score for clinical complications was established for each patient by independent investigators with separate evaluation of complications involving the CNS.

Children with abnormal EAEP results (n = 13) had suffered higher rates of clinical complications than those with normal responses. In particular, CNS complications were seen twice as frequently in patients with EAEP abnormalities. No correlation, however, was found with actual serum creatinine levels