depending upon various factors of exposure, constitution, etc. The subject was a woman who worked for 3 years on an assembly line manufacturing foam automobile air filters. She had an almost perfect work attendance and performance record. On two occasions during her last months at this job, the hosing carrying the solvent malfunctioned, and she was enveloped in a solvent mist. Immediate symptoms included headache, nausea, skin rash, shortness of breath, stomach pain, nervousness, blackouts, hoarseness, and speech slowing and slurring. Shortly thereafter, she developed a disorder similar to Parkinson's disease, with motor and cognitive dysfunction, tremor, and headache. Upon examination 4 years postexposure, symptoms consistent with permanent neurotoxicity were found with the Neurotoxicity Screening Survey. Estimated premorbid FSIQ was probably in the average range. Current FSIQ was at the 1st% (VIQ 2nd%, PIQ 1st%). Malingering was not found on four tests of this variable. Examination of the medical record found no alternate explanation of her illness. In conclusion, solvents containing gamma butyrolactone and/or *N*-methyl pyrrolidone may cause permanent neurotoxicity in some people, depending upon various factors of exposure and of the exposed. In general, solvent workers need to be informed of the potential for neurotoxic injury from their exposure, and then monitored using repeated neurobehavioral tests.

Neurocognitive and psychiatric symptoms in tertiary syphilis
Steketee MC, Warren LH

There is a common misconception among mental health professionals that people rarely present with neurosyphilis. Patients with tertiary syphilis may present with acute mental illness, specifically delusions and psychosis, and commonly present with neurocognitive deficits. We note that there were at least six patients with neurosyphilis who were admitted to a North Carolina State psychiatric facility in the past 2 years. These patients are relatively young (mean age = 38.5), are both male and female, and come from several ethnic groups. Neuropsychological testing was attempted with all of them, but several patients were unable to complete formal testing due to severely impaired neurocognitive functioning. We present two case study examples describing neurocognitive symptoms in patients with neurosyphilis. Data for one individual include one pre- and two post-treatment assessments. Mr. T is a 48-year-old African–American male who was hospitalized following a 2-month period of bizarre behavior and personality changes with no known etiology. He had no history of psychiatric treatment or substance abuse. Mr. S is a 36-year-old African–American male with a history of alcohol dependence and untreated syphilis who was admitted with paranoia, auditory hallucinations, and new onset of neurocognitive decline. Testing revealed deficits common to both men as well as unique areas of weakness. Additionally, both patients showed no insight into their neurocognitive deficits. Significant improvement in psychiatric and neurocognitive functioning was demonstrated for one individual who was retested after pharmacological treatment. However, residual neurocognitive impairment in memory and executive functioning will be described.

PEDIATRIC GRAND ROUNDS

Neuropsychological profile in cri-du-chat syndrome: a case report
Beaulieu I, Lajiness-O'Neill R

Cri-du-chat syndrome (CDCS) is a rare genetic disorder (chromosomal deletion 5p −) whose phenotypic expression includes moderate/severe mental retardation (MR), speech delay (expressive >

receptive), and growth retardation. Few studies have examined the cognitive abilities of affected individuals, with most reporting significant variability. A comprehensive neuropsychological case study of a 7-year-old girl is presented. Results revealed mild MR (Stanford–Binet: composite = 58), without significant discrepancy between verbal and visuospatial intellectual skills. Academic performance revealed a relative weakness in arithmetic (WRAT-3: reading SS = 70; spelling SS = 73; arithmetic SS $\leq$ 46). Perceptual–motor skills were impaired (VMI: SS = 68), although less than receptive (Token Test: − 4 S.D.) and expressive language (verbal fluency: − 2 S.D. and Boston Naming Test: − 3 S.D.). Fine motor dexterity was impaired, bilaterally. Immediate multiple trial verbal list learning was slightly better than visual learning over trials, although not substantially discrepant from estimates of ability (TOMAL: WSR SS = 5; VSR SS = 3). In contrast, immediate recall of meaningful visual information was average (FM SS = 8). Delayed recall (WSR) improved significantly with phonemic cueing (8/8 or 100%) possibly revealing impaired immediate recall secondary to language deficits or a specific deficit with retrieval and substantially improved performance given time for consolidation. These results suggest overall verbal and visuospatial deficits, in the context of mild MR; however in this case receptive>expressive language impairment. Of considerable interest, delayed cued verbal recall emerges as a possible islet of ability and potential avenue for intervention.

A case study of familial dyslexia: linking brain morphology and neuropsychological test performance

Craggs JG, Sanchez JL, Kibby MY, Hynd GW

Severe developmental dyslexia affects between 2% and 10% of all children. Such individuals typically exhibit deficits in reading, spelling, phonological processing, automaticity, and verbal short-term memory. Verification for a neurobiological basis of developmental dyslexia exists via electrophysiological, postmortem, MRI, and PET studies. Developmental dyslexia may result from congenital neurological defects, and research suggests a link to autosomally dominant genes. To lay bare a relationship between brain morphology and neuropsychological functioning, our study examined the relationship between test performance and brain morphology of the posterior portion of the Sylvian fissure using structural MRIs of a nuclear family. Gyral morphology was examined according to Steinmetz typologies, which Hynd et al. recently allied with developmental dyslexia. Participants included an intact nuclear family of six, with three of the four sons and the mother reporting reading difficulties. All of the children and the father experience seasonal allergies. Results confirmed a link between familial neuropsychological functioning and brain morphology. All family members demonstrated PIQ>VIQ (1–3 S.D.). VIQ, verbal STM, and phonology scores were low average, whereas PIQ was average to superior. Interestingly, morphological typing revealed that two-thirds of the family matched the Type II morphology of the left hemisphere. Thus, our findings hint at a link between brain morphology and neuropsychological performance, which genetics may influence. Future research should seek to demonstrate if such consistent findings occur across families in terms of neuropsychological test performance and brain morphology.

Subcortical band heterotopia: a neurocognitive and fMRI study

Olds J, Keene DL, Logan WJ

Subcortical band heterotopia, or double cortex, is a malformation of cortical development where neurons fail to migrate to the surface of the cortex. The resulting band of subcortical gray matter is

separated from the cortex by white matter. This disorder is associated with epilepsy and cognitive impairment. While the degree of cognitive impairment has been related to the size and distribution of the band, other than measures of intelligence, there has been little investigation of neurocognitive functioning associated with band heterotopia. Previous fMRI studies have documented activation of the band with motor activity, but there has been no investigation of language functioning. In this study, the neurocognitive functioning of a 14-year-old female, diagnosed with band heterotopia at age 13, is reported. Both neuropsychological assessment and fMRI study were conducted. fMRI investigation included motor (alternate finger tapping) and language (verb generation) tasks. A significant discrepancy between verbal (82) and performance (59) intelligence was found on assessment, as well as a similar difference between verbal (81) and visual (68) memory. Selective difficulties in language comprehension were also documented. While reading tended to be higher than mathematics, specific difficulties in reading comprehension were found. fMRI study indicated activation of the primary and supplementary motor cortices, as well as the underlying band on the motor task, which is consistent with previous research. On the language task, activation of the left inferior frontal gyrus and left supplementary motor area was documented, but no activation of the band. Implications of these findings will be discussed.

NEURODEGENERATIVE DISORDERS

Impact of strategy use on measures of list learning and recall in older adults

Chaytor NS, Nissley HM, Schmitter-Edgecombe M

Fifty young adults (ages 17–28), young-old adults (ages 57–69), and old-old adults (ages 70–79), matched for IQ, completed a 12-item list-learning task from the Memory Assessment Scale (Williams, 1991) to examine the effects of age and strategy use on list learning and recall. Consistent with normative data, old-old adults' performance on list acquisition was significantly lower than the performances of the young and young-old adults. Although the groups did not differ in their strategy use (semantic or serial clustering) during the list-learning task, regression analyses indicated that strategy use differentially predicted list-acquisition performance for the old-old adults compared to the young and young-old groups. That is, semantic clustering was only found to improve the old-old adults' performance. Contrarily, serial clustering tended to impair the old-old group. Neither semantic nor serial clustering impacted the performances of the young or young-old groups. Results also suggested that strategy use differentially predicted later memory performance. While the old-old adults produced fewer words than the young and young-old groups at both the immediate and delayed recall conditions, regression analyses suggested that only the old-old adults benefited from strategy use at encoding. The old-old adults tended to recall more items in the delay conditions if they used semantic clustering at encoding. Serial clustering was not found to be predictive of recall for any of the groups. These results suggest that older adults may be better able to compensate for age-related memory decline if they use semantic strategies during learning.

Detecting cognitive changes in mild cognitive impairment: effects of practice on category fluency

Cooper DB, Lacritz LH, Hynan L, Nyberg TJ, Cullum CM

Verbal fluency tests are commonly used in neurocognitive and mental status examinations in patients with suspected Alzheimer's disease (AD). Inflation of test scores as a result of practice effects may