November 13 Highlights

Withdrawal of corticospinal projections during development in humans

This study "has implications for the design of new rehabilitation strategies aimed at reducing the effects of perinatal hemispheric damage."

Eyre et al. studied corticospinal development using transcranial magnetic stimulation. In neonates, corticomotorneuronal projections are the same on both sides. During development there is rapid differentiation with greater withdrawal of ipsilateral corticomotorneuronal projections than contralateral. In subjects with unilateral perinatal brain lesions there were greater ipsilateral and contralateral corticomotorneuronal projections from the intact hemisphere. These observations imply activity-dependent plasticity of corticospinal development. Adult patients with stroke did not evidence such plasticity.

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The Wolpaw and Kaas editorial points out that this important human study confirms a wealth of animal data and suggests new clinical strategies for treating perinatal hemispheric damage.

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Neurology resident competency: Documenting what they have done

The Cucchiara and Kasner questionnaire-based note reports data from 96% of residency programs. They document that most graduating neurology residents (80%) had treated stroke with tissue plasminogen activator (tPA). Seventy-five percent were comfortable using tPA. The presence of a stroke program at the institution was associated with greater use of and comfort with tPA.

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The accompanying editorial by Greenwood and Scheiber notes that neurology residency program requirements and ABPN evaluation will increasingly assess learning competencies as opposed to testing for knowledge. They also note the development of training programs in vascular neurology that may improve training in stroke.

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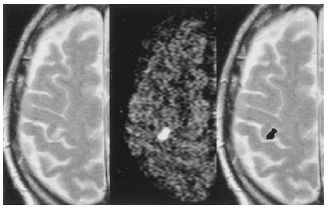
Focal hand/finger weakness: DWI of ischemic lesions in the hand motor cortex



Left hand paresis (ulnar distribution) medial lesion.

Gass et al. used diffusion/perfusion MRI and image coregistration to correlate clinical and MRI features of acute distal arm paresis. Small cortical lesions in the motor cortex were identified in all 14 cases. An ulnar distribution of finger weakness was more often associated with medial lesions of the "hand knob," whereas lateral lesions caused a radial pattern of finger involvement.

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Symptomatic hemorrhages after intraarterial thrombolysis

Kase et al. analyzed symptomatic intracerebral hemorrhages from the PROACT II trial. The 12 hemorrhages (10.9%) following recombinant prourokinase occurred in the area of the preceding cerebral infarct, and had high mortality (83%). Hyperglycemia at stroke presentation was a possible risk factor for hemorrhage.

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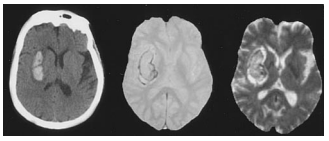
Diffusion/perfusion MRI: Intracerebral hemorrhage and the ischemic penumbra



Head CT, MRI GRE, MRI SWI

Kidwell et al. studied 12 patients with hyperacute primary intracerebral hemorrhage with diffusion/perfusion MRI. On DWI, three patients had perihematomal rims of decreased apparent diffusion coefficient values, suggesting that a potentially salvageable rim of injured tissue can be visualized in some patients with primary intracerebral hemorrhage.

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Molecular abnormalities in the brain of autistic individuals

The biochemical basis of autism is poorly understood. Purcell et al. measured the expression of 9,000 genes in postmortem cerebellum from autistic individuals. They observed differential regulation of several genes and proteins having roles in glutamatergic neurotransmission. If glutamate regulation and gene expression are indeed abnormal, these observations suggest new directions for treatment.

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Rapid infusion of IV immunoglobulin (IVIg)

Grillo et al. assessed the feasibility of rapid infusion of IVIg and found that 26% of rapidly infused patients had adverse events. Although this is higher than rates reported with slow, conventional infusion regimens, the majority of patients preferred rapid infusion because of its convenience.

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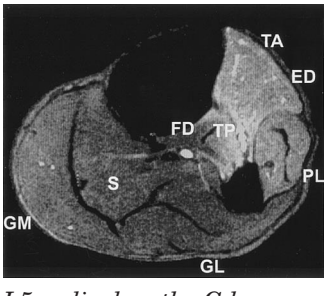
Gadolinium (Gd)-enhanced MRI: Early detection of denervated muscle



L5 radiculopathy Gd-enhanced MRI

Bendszus and Koltzenburg show that marked Gd MRI enhancement can be seen early after muscle denervation, allowing early detection of peripheral nerve lesions in humans.

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Lamotrigine in the treatment of SUNCT syndrome

D'Andrea et al. treated five patients with short-lasting, unilateral, neuralgiform headache attacks with conjunctival injection and tearing (SUNCT) syndrome with lamotrigine (125–200 mg daily), obtaining a complete remission in three patients and a substantial reduction of attack frequency in the other two.

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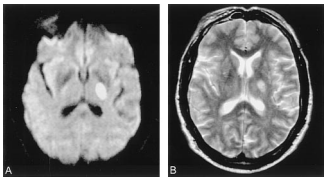
Sidenafil (viagra)-related TIA and stroke



Cerebral infarct with viagra

Morgan et al. document a patient in whom TIA and then a cerebral infarct followed repeated viagra use (without coitus).

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