

was used to guide invasive electrodes to locations that otherwise would not have been targeted and provided unique localization data, not evident from other imaging modalities, that strongly influenced the surgical management of the patient. In seven patients, for whom data from invasive ECoG were available, the MSI was highly correlated with the zone of seizure origin identified by EcoG.

Conclusion. Magnetic source imaging can provide critical localization information that is not available when other noninvasive methods, such as vEEG and MRI, are used.

Auditory cortex responses to clicks and sensory modulation abnormalities in children with autism spectrum disorders (ASD)

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Auditory sensory modulation difficulties are common in autism spectrum disorders (ASD) and may stem from a faulty arousal system that compromises the ability to regulate an optimal response. To study neurophysiological correlates of the sensory modulation difficulties, we recorded magnetic field responses to clicks in 14 ASD and 15 typically developing (TD) children. We further analyzed the P100m, which is the most prominent component of the auditory magnetic field response in children and may reflect preattentive arousal processes. The P100m was rightward lateralized in the TD, but not in the ASD children, who showed a tendency toward P100m reduction in the right hemisphere (RH). The atypical P100m lateralization in the ASD subjects was associated with greater severity of sensory abnormalities assessed by Short Sensory Profile, as well as with auditory hypersensitivity during the first two years of life. After correction for IQ, the RH P100m amplitude tended to correlate negatively with severity of autism symptoms in the ASD group ($p=0.06$). The P100m reduction in the RH in the ASD children suggests disturbance of the RH ascending reticular brainstem pathways and/or their thalamic and cortical projections, which in turn may contribute to abnormal arousal and attention. The correlation of sensory abnormalities with atypical, more leftward, P100m lateralization suggests that reduced preattentive processing in the right hemisphere and/or its shift to the left hemisphere may contribute to abnormal sensory behavior in ASD.