MAGNETIC RESONANCE IMAGING FINDINGS IN PATIENTS WITH CLINICALLY ISOLATED SYNDROME SUGGESTIVE OF MULTIPLE SCLEROSIS

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Introduction: Clinically isolated syndrome (CIS) is an event due to a single central nervous system (CNS) lesion that lasts longer than 24 hours and resolves within several weeks of onset. It is typically the first manifestation of multiple sclerosis (MS). The most commonly affected areas are the optic nerves, the brainstem and the spinal cord but any region of the CNS may be affected. A relationship between the number of brain T2 hyperintense magnetic resonance imaging (MRI) abnormalities during the CIS episode and the risk of developing MS has been found.
Studies have demonstrated a direct relationship with the number and volume of lesions detected on the brain MRI and the risk for developing MS (1-3). This topic was evaluated previously in 1998 (4).
Identifying asymptomatic lesions will help to determine the risk for developing MS and possible treatment (5).

Objective: To assess the frequency of asymptomatic brain lesions in subjects with spinal cord syndrome or spinal cord lesions in patients with a syndrome above the spinal cord.

Methods: Retrospective study of consecutive patients diagnosed with CIS that presented to a specialized MS clinic in Southeast Texas.

Results: Thirty eight subjects were identified, 76% female. Age of CIS onset was 25 years old or younger in 18%, 26-35 years in 40%, 36-45 years in 16%, 46-55 years in 16% and older than 55 years in 10%. Ten subjects (26%), reported family history of MS (Table 1).

Gender	Female: 76% (29)	Male: 24% (9)
Age of onset	<= 25 y: 18 26-35 y: 40% 36-45 y: 16% 46-55 y: 16% > 55 y: 10%	
Family history	26% (10)	

Optic neuritis (26%) and transverse myelitis (38%) were the most frequent initial clinical events.

Initial study was a brain MRI in 26 (68%) of the subjects; 23 (88%) were abnormal, 4 showing dissemination in space according to the Barkhof criteria. Initial studies with cervical and thoracic MRI were done in 9 and three patients respectively; all were abnormal.

Twenty two patients (86%) with initial brain MRI underwent cervical and thoracic MRI studies; 14 (63%) had abnormalities in cord imaging suggestive of MS.

All the patients with initial spine MR imaging underwent brain MRI; five (41%) showed abnormalities suggestive of demyelination (Figure 1).

Figure 1. Results.

	Abnormal	Normal
Initial MRI study -Brain: 26 (68%) -Cervical: 9 (24%) -Thoracic: 3 (8%)	 23 (88%) 9 (100%) 3 (100%)	 3(12%) 0 0
Initial brain MRI followed by cord MRI: 22 (86%)	14 (63%)	8 (27%)
Initial cord MRI followed by brain MRI: 12 (100%)	5 (41%)	7 (59%)

Conclusions: Around 63% of patients with initial brain and 41% with initial spinal cord MRI studies showed evidence of asymptomatic demyelination in the clinically unaffected area of the CNS. Results suggest that imaging of the entire CNS is valuable In determining the risk for developing MS after CIS.

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