Misdiagnosis of Initial Neurological Symptoms as Vascular Disease Rather than Demyelinating Disease

Krupa S. Pandey MD, Gary Bernardini MD, Katie Wang, Maxwell Alley
Albany Medical College, Albany NY

Background

- The urgency of diagnosing a stroke or transient ischemic attack (TIA) in a timely fashion in order to impact morbidity and mortality means that individuals presenting with neurological symptoms are frequently diagnosed with a vascular etiology.
- Lack of MRI availability at small community based hospitals may delay diagnosis
- Despite advances in neuroimaging techniques, it is still hard to differentiate between acute and subacute ischemic lesions from demyelinating plaques.
- Diffusion weighted imaging, a technique commonly used to detect acute ischemic lesions, is also positive in acute demyelinating plaques.

Methods

- Charts of patients seen within the Neurology department in the last 10 years with billing codes for both demyelinating disease and vascular diseases were identified.
- Inclusion criteria consisted of onset of neurological symptoms within 24 hours, initial admitting diagnosis as vascular disease, workup which confirmed demyelinating disease as diagnosis based on exam and MRI findings.
- Data extracted included demographic data, time frame of symptom onset, MRI characteristics, fulfillment of McDonald criteria, time to DMA initiation, presenting symptoms and co-morbid conditions.

Results

- 269 charts were identified with billing codes for both vascular disease and demyelinating disease.
- 10 (3.7%) patients met the inclusion criteria. 8 were diagnosed as Multiple Sclerosis, 1 with LETM, and 1 with Clinically Isolated Syndrome.
- Baseline characteristics and co-morbid conditions—see chart below.
- Average time to diagnosis was 3.76 years (range 0.1-10 years).
- 7 out of the 10 patients were evaluated initially at an outside hospital or outpatient setting.
- All patients diagnosed as MS met McDonald criteria at the time of presentation.
- Presenting symptoms—dysarthria, hemiplegia (including face), ataxia and diplopia.
- DWI sequences were not available on all patients

Charts

Demographics and Baseline Data

<table>
<thead>
<tr>
<th>Population</th>
<th>N = 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Female: 7 Male: 3</td>
</tr>
<tr>
<td>Age</td>
<td>Mean: 44.9 (Range 42-63 yrs)</td>
</tr>
<tr>
<td>Average time to diagnosis</td>
<td>Mean 3.76 years (Range 0.1-10 years)</td>
</tr>
<tr>
<td>Co Morbid conditions</td>
<td>HTN, hyperlipidemia, DM, sinus venous thrombosis</td>
</tr>
</tbody>
</table>

Discussion

- In our very small population of patients that presented with acute neurological symptoms suggestive of a vascular etiology, close to 4% were eventually diagnosed as demyelinating disease.
- Lack of consideration of demyelinating disease in populations over the age of 40 and abrupt onset of symptoms could be a potential factors.
- Availability and development of neuroimaging techniques may lead to a more rapid diagnosis.
- Implications for early diagnosis and management based on an appropriate diagnosis are considerable.

References

1. O’Riordan, A M Nor and M Hutchinson. CADASIL initiating multiple sclerosis: the importance of MRI markers. Mult Scler 2002 8: 430

Disclosures

The authors received no outside funding for this project.