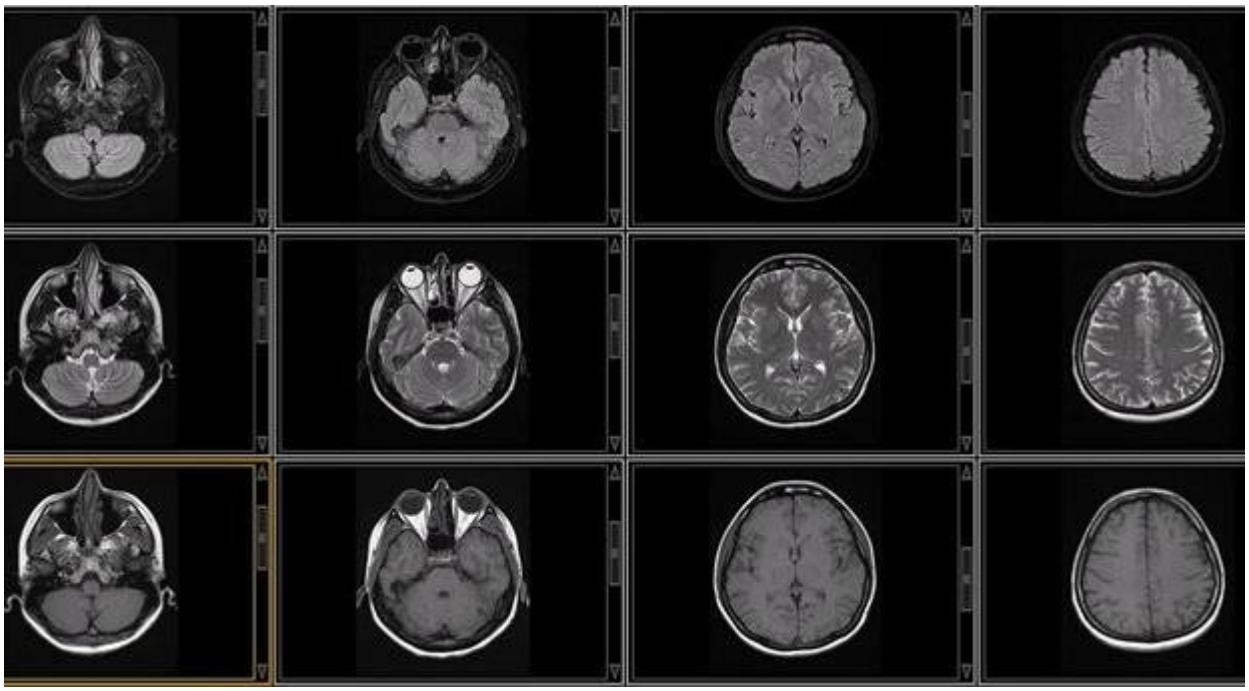
A Double-Edged Sword



“Do I really have to have another brain MRI? It’s really very expensive, and I don’t know if it’s safe?”

These are totally understandable concerns. Being placed into a narrow, noisy tube for what seems like forever is certainly unpleasant. However, understanding the role of central nervous system MRIs in diagnosing and managing the treatment of MS may make the experience somewhat more tolerable

An MRI uses magnets and radio waves to image the water content of the brain and spinal cord. For the science buffs out there, it measures proton density. Having MRIs, unlike having CT scans, does not involve exposure to x-irradiation. It is, overall, a very safe test, the only exception being if the chemical gadolinium is injected to better see lesions. In persons with severe kidney disease, gadolinium can cause severe inflammation and thickening of the skin. Fortunately, this is rare, but your doctor should check your kidney function before using gadolinium as part of your MRI exams.

Any change in water content will show up as a lesion on the MRI. As you can imagine, any number of different causes can change water content. These range from infections, to trauma, to tumors, to strokes, and of course, inflammation, such as seen in MS. Thus, changes on brain MRIs are relatively non-specific. That said, however, in the late 20th century as use of MRIs became more frequent, it became apparent that different diseases had distinct patterns to their lesions. This was especially true of MS, and as a result, identifying the characteristic patterns of lesions of MS is now essential to making a diagnosis of MS.

Not only is the pattern of lesions important in diagnosing MS, the nature of lesions is also important. They provide a clue as to the severity central nervous system inflammation and the degree of tissue destruction. Lesions can represent areas of new or acute inflammation, chronic inflammation or scarring, areas of tissue destruction (so called “black holes”), and areas of healing or remyelination. Having this information can be most useful in deciding which disease-modifying therapy to use to treat your MS and whether to change meds.

Central nervous system MRIs are also essential to detect “clinically silent” diseases. Not every MS lesion results in either a new or worsening symptom, or a change on exam. As a result, new lesions can slowly accumulate over time, resulting in increasing tissue damage and slowly increasing disability. Because of this “silent” progression, most MS specialists recommend periodic brain and spinal cord MRIs to see if current treatments are effective. The intervals between scans will vary, being more frequent (say every six months) at the start of a treatment, and less often (say, every one to two years) in persons that are tolerating disease-modifying therapy well.

MRIs are very sensitive in detecting changes in central nervous system water content, and sensitivity has increased as stronger magnets are used in newer MRIs. This is both good and bad. Since the changes on MRIs are relatively non-specific, and diseases other than MS, such as migraines, diabetes, high blood pressure, and just getting older can result in new lesions, healthcare providers not experienced in the diagnosis and treatment of MS may falsely make a diagnosis of MS based mainly on the presence of brain lesions, or may make treatment decisions inappropriately based in lesions resulting from causes other than MS. Thus, I recommend that, if at all possible, have a second opinion regarding their diagnosis of disease, and, if at all possible, have their disease treated by persons with particular expertise in an established, accredited MS center.
