Recent studies have pointed towards a relationship between repetitive contrast-enhanced magnetic resonance imaging (MRI) and accumulation of gadolinium-based contrast agents. This relationship seems to be dependent on the subclass of contrast agents (linear vs. cyclic) used. Over the past decades, MRI has become one of the most valuable tools in the diagnosis and follow-up of a wide spectrum of disease entities. This holds true especially for chronic diseases such as multiple sclerosis. Given current strategies to establish MRI in treatment decision pathways due to the availability of more potential treatment options, repetitive MRI is frequently performed during the disease course of MS. In this article, we review currently available studies focusing on the accumulation of gadolinium-based contrast agents. Furthermore, consequences that may arise in the context of MR imaging in MS patients are discussed.