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Paramagnet substances include various metals such as Fe (iron), Mg (magnesium) and Gd (gadolinium), oxygen and ions. These ions have unsupported electrons, resulting in positive magnetic sensitivity. The size of this sensitivity is less than 0.1% of the size of feromagnetic substances. Effects of MRI are an increase in the level of relaxation of T1 and T2 (decrease of T1 and T2 times). The figure shows the effect of paramagnet material (grey circle) on magnetic field flow lines (blue). Gadolinium is used as mri contrast agent. At the right concentration, gadolinim contrast agents cause a preferential increase in T1 relaxation, resulting in an increase in the signal T1 weighed in the images. At high concentrations, as is sometimes seen in the bladder, instead of visible signal loss, the result of the effect of t2 relaxation prevails. Working off-campus? Learn about our remote access options Volume 37, Number 10 0094-2405/2010/37(10)/5165/14/$30.00 Calcification and bleeding identification is essential for the etiological diagnosis of brain damage. The purpose of this work was to develop a robust method of characterisation of para-and-diamagnetic intracerebral lesions based on clinical gradient echo magnetic resonance imaging data purchased at 1.5 Tesla. The distribution of magnetic sensitivity of the biological tissue creates a separate magnetic field model, which is directly reflected in the images of the magnetic resonance phase of the gradient echo. Compared to brain parenchyma, iron-loaded tissues are more supportive, while mineralized tissues usually have more diamagnetic sensitivity. The magnetic resonance phase data were turned into the main sensitivity distribution using additional geometric information about the lesions from the sunset echo-size signal void corresponding to the lesions. Clinical magnetic resonance imaging examinations were processed and evaluated in three patients with multiple brain damage (total). The results of one patient were confirmed by an additional available CT scan. Digital simulations were carried out to assess the robustness of the method. Resulting sensitivity maps showed impressive damage to the boundaries of vessels and potentially iron-laden fabric. The sensitivity maps clearly reflected the compensation of non-native field settlements. In all cases, there was discrimination against diamagnetic lesions and the results were confirmed by an additional ct scan. Digital simulations have shown that it is possible to reliably determine the overall moment of magnetic damage. Thus, the proposed method can provide quantitative values for the minimum magnetic sensitivity of lesions. A non-invasive, semiautomatic brain injury characterisation method has been developed based on resonance tomography. Initial clinical results showed that the proposed method can be used to diagnose lesions with calcification or bleeding. If this is confirmed by larger studies, it may avoid the need to validate ct scans. Vera Lambrecht, Jannis Hanspach, Alana Hoffmann, Lisa Seyler, Angelika Mennecke, Sina Straub, Franz Marxreiter, Tobias Bäuerle, Frederick B. Laun, Jürgen Winkler, Map of Quantitative Sensitivity depicts a large myelin deficit and iron deposition in the transgenic model of multi-system atrophy, experimental neuroscience, 10.1016/j.expneurol.2020.113314, 329, (113314) (2020). Juan Liu, Kevin M. Koch, Weakly supervised learning for a one-step quantitative sensitivity map, machine learning for the reconstruction of medical images, 10.1007/978-3-030-61598-7_7, (70-81), (2020). By M. Schneider, Markus Möhlenbruch, Michael Denoix, Mark E. 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