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## How functional MRI could serve patients with chronic pain

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The definition of pain by IASP is “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage”. Physical pain is a complaint associated with disparate cognitive costs and socioeconomic outgo, but is not easy to ascertain. Pretty much most of the clinical studies of acute and chronic painful conditions, recruit self-report measures, as an assessment tool in predicting therapeutic efficacy. The competency of such measures is limited by factors such as age, cognition disorders and impaired consciousness. Validation the interplay between peripheral and central influences, and ascertaining pathological vs emotional or cognitive influences could aid decisions regarding the best modality of treatments. This is where imaging might provide contribution in diagnosis and management of chronic pain. Functional MRI (fMRI) is a functional neuroimaging technique using MRI that measures brain activity using regional changes in cerebral blood flow. Coupling of cerebral blood flow and neuronal activation is the basis of fMRI (Activity drives metabolism and metabolism drives perfusion). Although the most research and clinical uses of this modality have tendencious toward minimizing surgical complications in patients undergoing surgery of brain tumors, there is growing interests toward using of fMRI in diagnosis, classification and follow up of non-malignant pathologies of CNS. In a study of fMRI based neurologic signature of physical pain, Wager et al., showed that it is possible to use fMRI to assess pain elicited by noxious heat in healthy persons. We use fMRI to see how neuroplasticity can affect the anatomic location of eloquent area in affected patients. Central neuroplasticity possess prognostic value in patients suffering from chronic pain syndromes. fMRI also enable us tracking down central effects of medications which cross blood brain barrier.

### Biography

Babak Babakhani has completed his MD followed by residency in Anesthesiology and Intensive Care at Tehran University of Medical Science-Iran (TUMS) with national board certification in Anesthesiology. Then he participated in a joint program of Clinical Neuroscience PhD by International Neuroscience Institute Hannover-Germany and TUMS. He trained as a fellow of Neuro-anesthesiology and Neuro-intensive care at Academic Teaching Hospital Nordstadt Hannover-Germany. He has an experience of 2 years directorship of interdisciplinary pain clinic. He has lectured and presented in numerous national and international meetings at Iran, Germany, Austria, Spain and USA.

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