

Brain Imaging to Treat or Diagnose Pain: Ethical Issues

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Brain imaging technologies such as functional MRI (fMRI) have been used for over 20 years to visualize and measure brain responses to noxious stimuli and connectivity patterns associated with pain sensitivity. These advancements have led to the concept by some that brain imaging can be used to diagnose chronic pain, and that imaging-based biomarkers may be used to predict treatment outcome in individual patients. Indeed, this type of assessment of pain represents a tremendous advance towards personal pain management. Despite these lofty goals, there are neuroethical issues that must be addressed during such biomarker development including the technical and neurobiological capabilities of brain imaging, individual differences in pain sensitivities and associated brain mechanisms/circuitries, privacy of brain data, financial and access to brain imaging technologies. In this talk, I will review key capabilities of brain imaging to detect chronic pain at the individual level and the neuroethical, societal, and policy issues that need to be considered should such technology be adopted for pain management decisions, insurance and/or legal claims of pain. I will also review the recommendations of the IASP presidential task force that examined the use of brain imaging for the purposes of chronic pain diagnostics (Davis et al., *Nature Reviews Neurology* 2017).