



MRS, a Potential Approach to Better Understand Discogenic Pain and Design CLBP Therapies

NEWS

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Magnetic resonance spectroscopy (MRS) and provocative discography (PD) support improved surgical outcomes for patients with chronic low back pain (CLBP), explained a study published in the 'European Spine Journal'.

This observational diagnostic development and accuracy study was performed to refine the clinical MRS to optimize performance and then determine whether MRS-derived biomarkers reliably recognises the painful discs, quantify degeneration severity, and forecast surgical outcomes for the CLBP patients.

Total 623 discs in 139 patients were scanned via the MRS and 275 discs also receiving PD. MRS data helped to quantify spectral features concerning the disc structure (collagen and proteoglycan) and acidity (lactate, alanine, propionate). The pain potential was calculated using the ratios of acidity to structure. MRS-SCOREs were compared to PD and the Pfirrmann grade.

Clinical utility was examined using the surgical success for 75 subjects who underwent lumbar surgery. Total of 206 discs went through the successful MRS and independent pain diagnosis.

MRS revealed about 85% total accuracy, 82% sensitivity, and 88% specificity as compared to the PD. These values increased to 93%, 91%, and 93%, considering the non-herniated discs. Also, a significant difference was observed between the MRS structure and Pfirrmann grades, except grade I versus grade II. When all the MRS positive discs were treated, the surgical success was found to be 97% versus 57% when the treated level was MRS negative. It was 54% when the non-treated adjacent level was MRS positive.

"The noninvasive MRS is a potentially valuable approach to elucidate the pain mechanisms and designing the CLBP therapies that are modified to the patient's need", deduced the study authors.

Source: European Spine Journal

Link: <https://link.springer.com/article/10.1007%2Fs00586-018-05873-3>

Original title of article: Magnetic resonance spectroscopy (MRS) can identify painful lumbar discs and may facilitate improved clinical outcomes of lumbar surgeries for discogenic pain

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