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Functional Bracing: A new Design for treating Colles fractures

Background and Aims

Primary biliary cholangitis (PBC) is an autoimmune liver disease that can progress to cirrhosis. However, reliable non-invasive tools for early cirrhosis risk stratification are still lacking. This study aimed to assess the diagnostic performance of fibroblast growth factor 19 (FGF19) in combination with the conventional liver fibrosis markers— aspartate aminotransferase-to-platelet ratio index (APRI), fibrosis-4 index (FIB-4), hyaluronic acid (HA), procollagen III N-terminal propeptide (PIIINP), collagen type IV (CIV), and laminin (LN) in PBC-associated cirrhosis.

Methods

This retrospective cohort study enrolled 164 PBC patients (68 with cirrhosis, 96 without cirrhosis) and 101 healthy controls. Serum levels of FGF19, HA, PIIINP, CIV, and LN were measured. APRI and FIB-4 were calculated using routine laboratory data. A diagnostic model was constructed using logistic regression and receiver operating characteristic (ROC) analysis.

Results

Cirrhosis patients exhibited significantly elevated FGF19, APRI, FIB-4, HA, and CIV levels compared to non-cirrhosis patients ($P < 0.01$). FGF19 demonstrated strong positive correlations with APRI, FIB-4, HA, and CIV, with the highest correlation observed for FIB-4. ROC analysis revealed that FGF19 alone had excellent diagnostic accuracy for cirrhosis (AUC=0.938, 95% CI: 0.900–0.976). Notably, a multi-marker panel (FGF19 + HA + CIV + APRI + FIB-4) achieved superior performance (AUC=0.983, 95% CI: 0.969–0.997), outperforming individual biomarkers.

Conclusions

Serum FGF19 is a promising biomarker for cirrhosis risk stratification in PBC. Its integration with traditional fibrosis markers significantly improves diagnostic accuracy and holds promise as a non-invasive tool for the differential diagnosis of cirrhosis in patients with PBC.

KeyWords

Primary biliary cholangitis; Fibroblast growth factor 19; Cirrhosis; biomarkers; Non-invasive diagnosis.

Biography

Prof. Douglas Wardlaw has conducted extensive research in the fields of functional bracing, casting materials, gait analysis, and low back pain disorders, with a particular focus on chemonucleolysis, spinal imaging, spinal stenosis, surgical techniques, and spinal stabilization and fusion. He has published approximately 100 scientific papers and authored seven book chapters. His most recent contributions include three chapters on functional bracing in the centenary edition of John Charnley's *Closed Treatment of Common Fractures* and a chapter in *Brown's Skeletal Trauma: Basic Science, Management, and Reconstruction*, 5th Edition. He has delivered or co-authored more than 700 presentations and posters at major scientific meetings worldwide. He has also been invited as a keynote speaker, guest lecturer, or visiting professor on around 60 occasions at prestigious institutions and professional gatherings, including the University of Miami, the University of Strathclyde, the British Orthopaedic Association, the British Association of Spine Surgeons, EuroSpine, the International Society for the Study of the Lumbar Spine, the International Intradiscal Therapy Society, the International Society for Minimal Intervention in Spine, and the Spine Trauma: Masters Update in Dubai.