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SYSTEMATIC REVIEW/META-ANALYSIS

DIAGNOSTIC ACCURACY OF THE LEVER SIGN IN DETECTING ANTERIOR CRUCIATE LIGAMENT TEARS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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ABSTRACT

Background: The anterior cruciate ligament (ACL) is one of the most commonly injured ligaments in the knee. With the prevalence of ACL tears increasing, there is a growing need for clinical tests to rule in and rule out a suspected tear. A new clinical test for detecting ACL tears has been introduced with preliminary studies showing promising results.

Hypothesis/Purpose: To systematically review and analyze information from the current literature on the diagnostic accuracy of the Lever Sign test for the use of diagnosing anterior cruciate ligament (ACL) injuries in a clinical setting.

Study Design: Systematic review and meta-analysis

Methods: A computerized search of PubMed, Cinahl, Scopus, and Proquest databases as well as a hand-search was completed on all available literature using keywords relating to the diagnostic accuracy of the Lever Sign Test. A quality assessment was performed on each article included in this review utilizing the Quality Assessment of Diagnostic Accuracy Studies (QUADAS).

Results: Eight articles were included, with only three studies exhibiting high quality, however the study samples were heterogenous. Included studies indicated that the Lever Sign test is both sensitive and specific in diagnosing ACL tears. Pooled sensitivity and specificity were 0.77 and 0.90, respectively. The negative likelihood ratio is 0.22 and the positive likelihood ratio is 6.60.

Conclusion: The Lever Sign test is comparable to other clinical tests used in current practice to detect an ACL rupture. The pooled data from current available literature on the Lever Sign indicate that a positive or negative test should result in a moderate shift in post-test probability. This test may be used in addition to other tests to rule in and rule out the presence of an ACL rupture.

Level of Evidence: 2a- Systematic Review of Level 2 diagnostic studies

Key Words: Anterior cruciate ligament, diagnostic accuracy, knee, Lelli test, Lever sign test, movement system

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