E-Poster

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Isokinetic Profile of Patients With Patellofemoral Syndrome

Topic: Health Conditions (Nervous System, Musculoskeletal System, Cardiopulmonary System)

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BACKGROUND

Patellofemoral pain syndrome (PFPS) is a common musculoskeletal disorder with a multifactorial etiology, often involving muscular imbalance. Its diagnosis is primarily clinical, and conservative management with targeted rehabilitation remains the cornerstone of the treatment. The aim of the present study was to assess the isokinetic profile of knee flexor and extensor muscles in patients with PFPS, to better understand the relationship between quadriceps/hamstring imbalance and PFPS and to guide both rehabilitation and preventive strategies.

METHODS

This prospective study included 32 patients diagnosed with PFPS and referred to the Physical Medicine and Rehabilitation Department of CHU Mohammed VI, Tangier. Isokinetic knee muscle assessment was performed using a Cybex HUMAC NORM dynamometer in concentric mode at 60°/s and 180°/s and eccentric mode at 30°/s.

RESULTS

The age of the patients ranged from 16 to 45 years with an average age 29.85 years for women and 31.66 years for men, with a female predominance (62.5%). 46.87% had a normal BMI, while 31.25% were overweight. Unilateral involvement was present in 78.12% of cases, affecting the dominant side in 48%. The Zohlen test was positive in 58.33% of cases.

The results of the isokinetic evaluation revealed a marked muscular imbalance between the hamstrings and the quadriceps at all analyzed speeds. Abnormal hamstring-to-quadriceps (J/Q) ratios were observed in 84.37% of patients, both at 60°/s and 180°/s. Furthermore, 25% of the participants showed an isolated quadriceps deficit, 15.62% a hamstring deficit, and 28.12% a mixed deficit, bringing the total proportion of patients with a muscular deficit affecting the extensors and/or flexors to 68.74%. Breaks in the force-position curves were noted in 65.62% of patients.

Comparison between the healthy and affected sides revealed significantly reduced peak torque of knee extensors and flexors on the affected side, particularly for the maximal force moment (MFM) of the extensors at 60°/s and 180°/s. Women demonstrated better isokinetic parameters on the affected side, while men showed superior muscle performance on the healthy side.

CONCLUSION

This study highlights the strong association between quadriceps/hamstring imbalance and PFPS, emphasizing the importance of isokinetic assessment in both rehabilitation and prevention. Identifying and addressing these imbalances through targeted interventions could help optimize muscle function and reduce the risk of chronic patellofemoral dysfunction.

Statement of Disclosures

None

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