The impact of meniscal surgery with concomitant ACL reconstruction on clinical outcomes: results from the UK National Ligament Registry

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INTRODUCTION:
Anterior cruciate ligament (ACL) injuries are commonly associated with meniscal tears. Surgical management of meniscal injuries has evolved over the years from total and partial meniscectomy to meniscal repair, with emphasis on meniscal preservation. However, conflicting evidence exists on outcomes of meniscal resection or repair with ACL reconstruction (ACLR). Moreover, It is unclear whether differences exist between outcomes of medial (MM) and lateral meniscal (LM) surgeries when associated with ACLR. Thus, the primary objective of this study was to compare patient reported outcomes (PROMs) following meniscal resection or repair for MM and LM injuries with concomitant ACLR, versus isolated ACLR.
METHODS:
We performed a retrospective review of prospectively collected data from the UK National Ligament Registry (NLR), encompassing patients who underwent primary ACLR between 1st of January 2013 and 31st of December 2022. Inclusion criteria were primary ACLR with autografts, either in isolation or combined with meniscal surgery, and 2- or 5-years patient reported outcome measures (PROMs). We extracted baseline patient characteristics, surgical details and PROMS including KOOS (knee injury and osteoarthritis outcome score), IKDC (International Knee Documentation Committee) and EQ5D (EuroQol-5D). Patients were categorized into 5 groups: isolated ACLR, ACLR with MM repair or resection and ACLR with LM repair or resection. The primary objective was to assess potential differences in PROMs at 2 or 5 years. Linear regression analysis, with isolated ACLR as the reference, was performed after adjusting for confounders.
RESULTS:
A total of 14,895 patients underwent primary ACLR; amongst them, 4,400 had available KOOS scores at either 2 or 5 years and were included in the final analysis. At 2 years postoperatively, the MM repair group(N=604) demonstrated inferior scores in KOOS pain ($\beta = -3.63$, $p < 0.001$), symptoms($\beta = -4.88$, $p < 0.001$), ADL($\beta = -2.43$, $p = 0.002$), sport and recreation($\beta = -5.23$, $p < 0.001$), QoL($\beta = -5.73$, $p < 0.001$), and IKDC ($\beta = -4.1$, $p < 0.001$) compared with the isolated ACLR group(N=2,423). The LM repair group(N=334) was associated with worse KOOS sports and recreation scores at 2 years ($\beta = -4.264$, $p < 0.001$). There was no significant difference between meniscal resection groups and isolated ACLR group at 2 years postoperatively. At 5 years, there were no significant differences between the isolated ACLR group and the meniscal repair or resection groups. In a subgroup analysis examining the impact of time to surgery, participants who underwent surgery within 12 weeks demonstrated superior PROMs at 2 and 5 years.
DISCUSSION AND CONCLUSION:
Our study showed that MM, and to a lesser extent LM repairs in combination with ACLR were associated with inferior PROMS compared to isolated ACLR at two years postoperatively, while meniscal resection groups exhibited comparable outcomes. These findings may be partly attributed to meniscal repair failure and subsequent re-operation. The time between meniscal injury and surgery is another confounding factor. At 5 years no significant differences in PROMs were evident. Further longer-term cross sectional studies are warranted to investigate the outcomes of meniscal surgery alongside ACLR.