IS HIP ARTHROSCOPY COST EFFECTIVE IN TREATING FEMOROACETABULAR IMPINGEMENT? A SYSTEMATIC REVIEW OF ECONOMIC EVALUATIONS

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OBJECTIVES

- FAI increases the person's risk for an early onset of osteoarthritis (OA) (1)
- This leads to further joint damage and the need for total hip replacement (THR)
- Hip arthroscopy has been proven to be a safe treatment for FAI with a shorter recovery time compared to open surgery or rehabilitation alone (2).

METHODS

- The study follows the Preferred Reporting Items Items for Systematic review and Meta-Analysis – Protocols (PRISMA-P) and the study itself follows the PRISMA statement guidelines. The study is registered in PROSPERO.
- The articles included will be gathered from Medline, Scopus, Embase, Cochrane, EBSCO, Web of Science Core Collection and Google Scholar databases.
- Articles will then be exported to Mendeley reference manager software.
- All records will be screened for eligibility and data will be extracted into a spread sheet.
- The studies will be assessed for quality using the Joanna Briggs Institute Critical Appraisal Checklist for Economic Evaluations (JBI-CAC-EE) (3).

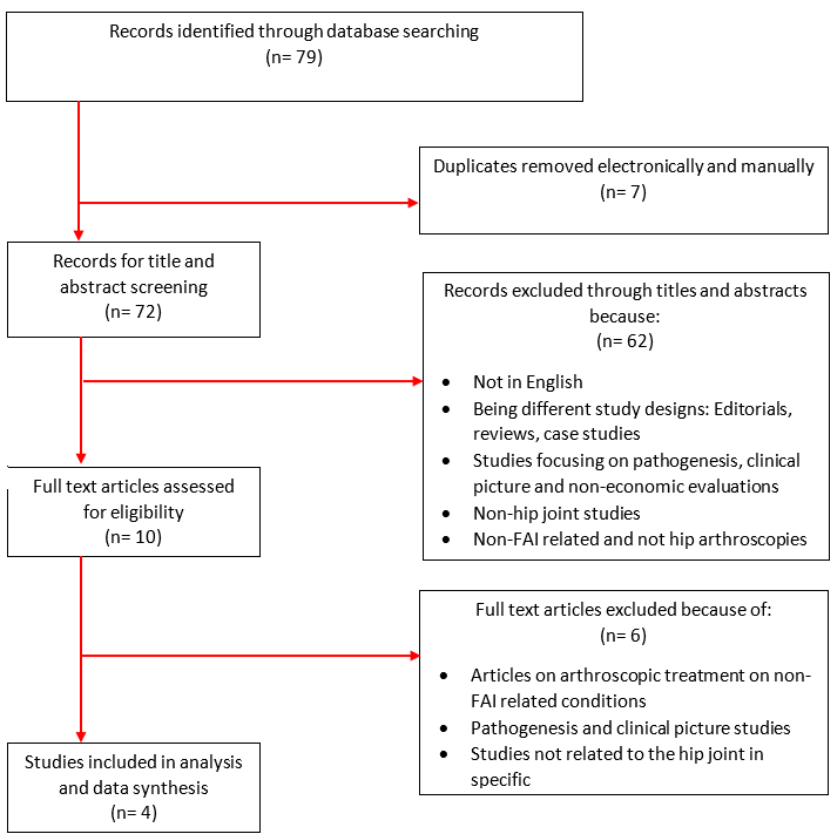
Table 1: Results from the included studies

Author	Sensitivity analysis	Mean absolute costs	ICER
Lodhia et al – USA 2016	One-way probabilistic	26,070 ± 7983 USD	- HA costs additional $2653 but generated more utility (additional 3.94 QALYs), - $754/QALY (below threshold of WTP $50,000/QALY) "HHS" – Compared to structure rehab *Costs from Medicare*
Mather et al – USA 2018	1, 2, 3 way probabilistic S A by Monte-Carlo simulation	23,120 ± 10,279 USD	- With cost of surgery at $100,000, hip arthroscopy is still highly cost-effective, with an ICER of $12,446. - Over the 10-year model time horizon, hip arthroscopy results in an incremental cost of $5625 and an incremental gain of 2.04 QALYs – Compared to non-operative treatment (below threshold of WTP $100,000/QALY) "HHS" *Costs from Pearldriver patient records and NHIS*
Shearer et al – USA 2011	Monte-Carlo simulation for one-way probabilistic	11,850 USD	$21,700/QALY (below threshold of WTP $50,000/QALY) "HHS" – Compared to observation *Costs from UCSF orthopedics department*
Clement et al – UK 2014	-	3,083 GBP	Linear regression modelling - Mean QALY gained at one year was 0.159, resulted in cost per QALY of £19,335. This cost decreased to £10,118 per QALY gained for two years of benefit, and diminished to £2,677 per QALY gained at 10 years (including reductions). (Threshold is 20,000 – 30,000 GBP) "SF12-6D"

RESULTS

- The study looked at the incremental cost effectiveness ratios (ICER), health utility measures and the threshold against willingness to pay. Four studies were found relevant from the search strategy (fig 1)
- All QALYs gained across the 4 studies in the analysis were less than the threshold of willingness to pay per year (table 1)
- Three studies were from USA used a Markov Mode and showed 754$ and 21,700$ per QALY below WTP of minimum 50,000$. They also scored 90.1% using the JBI-CAC-EE
- One study from the UK used linear regression modelling and showed 2,677£ per QALY which was below the WTP 20,000£. This study scored 77.3% using the JBI-CAC-EE

Figure 1: PRISMA Flowchart of the included studies



CONCLUSION

- This study shows that hip arthroscopy is cost-effective in FAI treatment in North America.
- This will reduce the burden of OA and need for THR.
- More studies in Europe and the UK are needed due to geographic and context differences.

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