Knee arthroscopy for degenerative meniscal tears and osteoarthritis in Norway: experience with reducing the volume

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Norway
Population density

- 5 mill
- 385 000 km$^2$
- 13 inhab/km$^2$
- 19 counties
Four regional health authorities responsible for specialist health care

SOUTH- EAST

Catchment area: 2.8 mill
~ 50% of population

NORTH

WEST

MID
REDUCING KNEE ARTHROSCOPY:
- IS IT RELEVANT?
- IS IT POSSIBLE?
WHAT IS THE EVIDENCE IN 2017?

Khan et al, CMAJ, October 7, 2014
Norwegian trial: Kise et al, BMJ 2016;354:i3740

• 2 RANDOMIZED TRIALS:
  • NO EFFECTS OF ARTHROSCOPIC DEBRIDEMENT/ LAVAGE FOR DEGENERATIVE KNEE DISORDERS COMPARED TO SHAM OR PHYSIOTHERAPY

• 5 OF 6 RANDOMIZED TRIALS:
  • NO CLINICAL MEANINGFUL EFFECTS OF DEGENERATIVE MENISCAL SURGERY ON PAIN OR FUNCTION COMPARED TO SHAM OR PHYSIOTHERAPY

• CONCLUSION:
  • THERAPEUTIC ARTHROSCOPY FOR DEGENERATIVE KNEE DISORDERS PROBABLY NO BETTER THAN CONSERVATIVE TREATMENT
Arthroscopic surgery for degenerative knee arthritis and meniscal tears: a clinical practice guideline

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What you need to know

- We make a strong recommendation against the use of arthroscopy in nearly all patients with degenerative knee disease, based on linked systematic reviews; further research is unlikely to alter this recommendation.
• Unnecessary?
• Patients who get a sham operation may do as well as those operated.
SOURCES

• NORWEGIAN NATIONAL PATIENT REGISTRY (NPR)
  • *NO CODING – NO REIMBURSEMENT* FROM THE DIRECTORATE OF HEALTH (HDIR)
  • ALL PUBLIC HOSPITALS IN THE 4 HEALTH REGIONS
  • PRIVATE HOSPITALS WITH REIMBURSEMENT CONTRACTS

• LIMITATIONS FOR ACCESS TO DATA:
  • LICENCE LIMITED TO LAST 4 YEARS
  • NO DATA FROM PRIVATE HOSPITALS WITHOUT CONTRACTS

• DATA ON RATES OF KNEE MRI PER COUNTY 2012-15
WHICH PROCEDURES WERE SELECTED?

- PARTIAL MENISCAL RESECTION (NGD11)
- MENISCAL REPAIR (NGD21)
- DEBRIDEMENT/ SYNOVECTOMY/ LAVAGE (NGF31)
Age-adjusted rates of knee arthroscopy by county of residence, average 2012-16.
Knee arthroscopies by county of residence.
Rate per 100 000. Average 2012-16.

Public vs private.
Knee arthroscopies per age group, average 2012-2016, all counties

- Debridement
- Meniscal repair
- Meniscal resection

- NGD11
- NGD21
- NGF31

Age groups:
- 10-19 år
- 20-29 år
- 30-39 år
- 40-49 år
- 50-59 år
- 60-69 år
- 70-79 år
- 80+ år
Knee arthroscopies per year, all counties

- NGD11 Meniscal resection
- NGD21 Meniscal repair
- NGF31 Cartilage debridement
KNEE ARTHROSCOPY RATE PER COUNTY 2012 AND 2016. MEDIAN/QUARTILES

WILCOXON-TEST: \( p = 0.0005 \)
Changes in rates of knee arthroscopy per county. Public hospitals 2012 vs 2016

RISK RATIO HIGH: LOW

2012: RR = 4.3
2016: RR = 3.1
RATES KNEE ARTHROSCOPY PER COUNTY, PUBLIC HOSPITALS. 2012 AND 2016
RATE REDUCTION 2012-16 KNEE ARTHROSCOPY
SOUTH-EAST HR VS OTHER REGIONS

45% vs 8%, $X^2 : p = 0.0001$
Tender for private hospitals: higher volumes

Revised requirements: Physiotherapy tried + max 20% > age 50

Orthopedic Advisory board, HR South-East: WARNING OF OVER-USE IN PUBLIC HOSPITALS
KNEE ARTHROSCOPY: 3 HYPOTHESES

1. Positive correlation public vs private arthroscopy?
   • i.e. supply trumps demand
2. Positive correlation knee vs shoulder arthroscopy?
3. Positive correlation MRI vs arthroscopy?
Correlation **public vs private** knee arthroscopies by county of residence, 2012-16

Spearman’s Rho = 0.32, p = 0.0016
Correlation between knee and shoulder arthroscopies 2012-16 per county of residence, public hospitals

Spearman's rho = 0.86, 95% CI 0.80-0.91, p<0.0001
Knee and shoulder arthroscopies by county of residence. Rate per 100,000. Average 2012-15.
Knee arthroscopy rate vs MRI per treatment county (public and private). Average rate 2012-15 /10^5, all ages

Correlation coefficient, R = 0.30
Linear regression: R^2 = 0.1, p = 0.22
SUMMARY OF FINDINGS

• ARTHROSCOPY RATES 41% REDUCED FROM 2013 – 2016
  • meniscectomy/ age >50/ South-East region: 57% reduction
• UNEXPLAINED REGIONAL VARIATIONS: SLIGHTY REDUCED
• STILL TOO MANY PATIENTS > AGE 50
SUMMARY OF FINDINGS (cont.)

• POSITIVE CORRELATION PUBLIC VS PRIVATE RATES PER COUNTY
  • i.e. supply more important than demand

• POSITIVE CORRELATION KNEE VS SHOULDER RATES
  • i.e. «if you’ve got a scope you have to use it»

• POSITIVE CORRELATION MRI VS ARTHROSCOPY
  • i.e. MRI generates demand for arthroscopy
Bringing down rates of unnecessary surgery is possible!

- Surgeon attitudes
- Primary physician attitudes
- Financial levers
- Regulatory levers
- Patient attitudes
- Shared decision

SURGERY RATES
THANK YOU!
WHAT IS THE EVIDENCE FOR CONSERVATIVE MANAGEMENT OF OSTEOARTHRITIS?

• Exercise:
  • >50 RCTs show efficacy for knee OA
  • 10 RCTs show efficacy for hip OA
• 2 international guidelines recommend exercise, weight loss and education
• But: only 36% of OA patients receive appropriate non-pharmacological care
WHAT EXPLAINS REGIONAL VARIATIONS IN SURGICAL RATES?

• John D Birkmeyer et al, Lancet 2013:

• Evidence suggests that surgical variation results mainly from differences in physician beliefs about the indications for surgery, and the extent to which patient preferences are incorporated into treatment decisions.

• Better scientific evidence about the comparative effectiveness of surgical and non-surgical interventions could help to mitigate regional variation, but broader dissemination of shared decision aids will be essential to reduce variation in preference-sensitive disorders.
AktivA Norway

- Target group: patients with symptomatic osteoarthritis of hip and knee
- Evidence-based education and supervised structured neuromuscular exercise
- Delivered by certified physiotherapists
- 6-8 weeks supervised training and education
- Implemented in Norway, Denmark (GLA:D) and Sweden (BOA)
- Outcomes registered at 3 and 12 months
AktivA: CHANGE IN FUNCTION AFTER 3 MONTHS

- MUCH WORSE
- WORSE
- A BIT WORSE
- UNCHANGED
- A BIT BETTER
- BETTER
- MUCH BETTER
AktivaA: CHANGE IN PAIN AFTER 3 MONTHS
Meniscal resections vs repairs. Public vs private

- Resection private
- Resection public
- Repair private
- Repair public
Muskel/skjelett-undersøkelser

Annual rates of knee arthroscopy in Scandinavia. Age >10 (Finland >= 18)

NGD11 = meniscal resection. NGD21 = meniscal repair. NGF31 = debridement.
Meniscal procedures (NGD11/21), public vs private by age group.
Meniscal procedures (NGD11+21). Health region of residence, public. Private (all HR). Total number by age group.
REGULATORY TIMELINES SOUTH-EAST HR

• 2012:
  • South-East HR meeting with medical directors (CMO’S) from all hospitals in regional health trust: information about overuse of orthopedic surgery with special focus on arthroscopic shoulder and knee procedures
  • New contracts with private providers – higher volume of arthroscopic surgery based on recommendation from orthopedic surgeons and waiting lists

• 2013: contracts for period Jan -14 to Dec -15
TIMELINE (CONT.)

2015:

- **January**: health atlas day surgery published; significant variation in utilization rates for arthroscopic knee and shoulder surgery
- **Spring**: new analyses show that 70 – 80 % of knee surgery is performed in patients > 50 years of age.
- **June**: Results presented to orthopedic surgeons from public and private hospitals in the region: agree rates too high (esp.>age 50)
- **August**: new tender requirements, public and private:
  1. adequate physiotherapy
  2. max 20% >age 50