Tekonivelinfektiot Suomessa – trendit ja kustannukset

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Tekonivelinfektiot trendit

- Enemmän primaarileikkauksia
- Väki vanhenee; enemmän potilaita ”at risk”
- Kynnys leikata huonokuntoisia alenee
Data on primary THR procedures performed for OA in 2003 and 2013 were extracted from national arthroplasty registries in Australia, Denmark, Finland, Norway and Sweden.

Life tables and population data were also obtained for each country. Lifetime risk of THR was calculated for 2003 and 2013 using registry, life table and population data.

In 2003, lifetime risk of THR ranged from 8.7% (Denmark) to 15.9% (Norway) for females, and from 6.3% (Denmark) to 8.6% (Finland) for males.

With the exception of females in Norway (where lifetime risk started and remained high), lifetime risk of THR increased significantly for both sexes in all countries from 2003 to 2013.

In 2013, lifetime risk of THR was as high as 1 in 7 women in Norway, and 1 in 10 males in Finland.

- Arthroplasty register data
  Australia, Finland, Sweden, Norway, Denmark
- Significant increases in the lifetime risk of TKR in all five countries from 2003 to 2013.
- Lifetime risk of TKR in 2013 was as high as 1 in 5 women in Finland, and 1 in 7 males in Australia.
Trends inceptions (Puhto AP Thesis 2015)

- Amongst European countries participating in the European Centre for Disease Prevention and Control’s (ECDC) surgical site infection (SSI) surveillance network, the cumulative incidence of SSI from 2008 to 2009 was 0.9% for patients undergoing THR and 0.65% for patients undergoing TKA.

- For revisions of hip replacements, the cumulative incidence of SSI was 1.8% with a comparable incidence of 1.5% for knee replacement revisions (ECDC 2012).

- The study was based on the Nordic Arthroplasty Register Association (NARA) dataset. 432,168 primary THAs from 1995 to 2009 were included (Denmark: 83,853, Finland 78,106, Norway 88,455, and Sweden 181,754)
- 2,778 (0.6%) of the primary THAs were revised due to infection.
- Compared to the period 1995-1999, the relative risk (with 95% CI) of revision due to infection was 1.1 (1.0-1.2) in 2000-2004 and 1.6 (1.4-1.7) in 2005-2009

- Adjusted cumulative 5-year revision rates due to infection were 0.46% (0.42-0.50) in 1995-1999, 0.54% (0.50-0.58) in 2000-2004, and 0.71% (0.66-0.76) in 2005-2009.
- The entire increase in risk of revision due to infection was within 1 year of primary surgery, and most notably in the first 3 months.
- The risk of revision due to infection increased in all 4 countries.

• 112,708 primary hip and knee replacements performed due to primary osteoarthritis (OA) between 1998 and 2009 were followed for a median time of 5 (1–13) years using data from nationwide Finnish health registries.

• Late PJI was detected > 2 years postoperatively, and very late PJI was detected > 5 years postoperatively.

Primary hip and knee arthroplasties performed due to primary osteoarthritis in Finland between 1998 and 2009 as reported in Hospital Discharge Register (HDR) or Finnish Arthroplasty Register (FAR) (n = 119,564)

Operations with no record in FAR excluded (n = 4,203)

Operations with missing data or prosthesis type or fixation excluded (n = 2,673)

Number of operations available for identification of PJI (n = 112,078)

Number of PJIs identified (n = 1,699)

PJIs excluded due to unreliable linkage (n = 354)

Number of PJIs available for analysis (n = 1,345)
564 (42%) detected first in FAR
782 (58%) detected first in HDR

- During the follow-up, involving 619,299 prosthesis-years, 1,345 PJIs were registered: cumulative incidence 1.20%.
- The incidence rate of late PJI was 0.069% per prosthesis-year and it was greater after knee replacement than after hip replacement (0.080% vs. 0.057%, p = 0.006).
- Very late PJI increased from 0.026% in 2004 to 0.056% in 2010 (IRR = 1.11, 95% CI: 1.02–1.20).
- Interpretation — the incidence rate of late PJI after hip or knee arthroplasty was approximately 0.07% per prosthesis-year. The incidence of very late PJI appeared to increase.
Tekonivelinfektioiden kustannukset

• The duration of revision surgery is longer, the prostheses are more expensive, surgical implantation costs are higher, patients stay in hospital longer, and there are more complications.

• Hoidon kustannukset ovat korkeita: yhden tekonivelinfektion hinnaksi on arvioitu jopa 50 000 dollaria (Sculco 1995).

BACKGROUND: The purpose of the study was to compare a group of patients who had periprosthetic infections after THA to a matched group of patients who underwent primary THA in terms of the associated costs, length of hospitalization, and number of readmissions (within 1 year).

METHODS: Between 2007 and 2011, 16 consecutive infected patients were matched to 32 noninfected patients (1:2 ratio).

RESULTS: The mean episode cost, length of hospitalization, and median readmissions was significantly higher in the infected group when compared to the matched cohort: $88,623 vs $25,659, 7.6 vs 3.29 days, and 2 vs 0, respectively.

CONCLUSION: Periprosthetic infections after THA resulted in an increased episode cost by approximately 3-fold, mean hospitalization period 2-fold, and led to a higher median number of readmissions.
Kallala RF, Vanhegan IS, Ibrahim MS, Sarmah S, Haddad FS. Financial analysis of revision knee surgery based on NHS tariffs and hospital costs: does it pay to provide a revision service? Bone Joint J 2015; 97-B(2)

- Revision TKA carries greater cost for the treating hospital than does a primary TKA.
- As well as the increased cost of perioperative investigations, blood transfusions, surgical instrumentation, implants and operating time, there is a well-documented increased length of stay which accounts for most of the actual costs associated with surgery.
- Revision surgery for infection was compared with revision for other causes (pain, instability, aseptic loosening and fracture).
- 168 consecutive revision TKAs performed at a tertiary referral centre between 2005 and 2012.
Kallala RF, Vanhegan IS, Ibrahim MS, Sarmah S, Haddad FS. Financial analysis of revision knee surgery based on NHS tariffs and hospital costs: does it pay to provide a revision service? Bone Joint J 2015; 97-B(2)

- Revision surgery for infection was associated with a mean length of stay more than double that of aseptic cases (21.5 vs 9.5 days, p < 0.0001).
- The mean cost of a revision for infection was more than three times that of an aseptic revision (£30 011 (sd 4514) vs £9655 (sd 599.7), p < 0.0001).
- Current NHS tariffs do not fully reimburse the increased costs of providing a revision knee surgery service. Moreover, especially as greater costs are incurred for infected cases. These losses may adversely affect the provision of revision surgery in the NHS.

• **METHODS:** The Nationwide Inpatient Sample (NIS) was used to evaluate 235,857 revision THAs and 301,718 revision TKAs between October 1, 2005 and December 31, 2010.

• Patient characteristics, procedure information, and resource utilization were compared across revision THAs and TKAs.

• A **revision burden** (ratio of number of revisions to total number of revision and primary surgeries) was calculated for hip and knee procedures.

• Severity of illness scoring and cost calculations were derived from the NIS.

• RESULTS: Revision TKAs increased by 39% (revision burden, 9.1%-9.6%) and THAs increased by 23% (revision burden, 15.4%-14.6%).
• Patients who underwent revision THA generally were sicker (> 50% major severity of illness score) than patients who underwent revision TKA (65% moderate severity of illness score).
• Mean LOS was longer for revision THAs than for TKAs.
• Mean hospitalization costs were slightly higher for revision THA (USD 24,697) than revision TKA (USD 23,130).
• Periprosthetic joint infection and periprosthetic fracture were associated with the greatest LOS and costs for revision THAs and TKAs.

• CONCLUSIONS: The revision burden for THA is 52% greater than for TKA, but revision TKAs are increasing at a faster rate.
• Both revision THAs and TKAs bear significant clinical and economic costs, patients undergoing revision THA tend to be older, sicker, and have greater costs of care.
Johtopäätökset

- Infektiot lisääntymässä
- Mitä tehdä?
- Automaattinen infektioraportti käyttöön Tyksissä (vuosikatsaus)
- Potilasohjaus
- Infektio-meetingit?
Kiitos!