Sick leave before and after arthroscopic partial meniscectomy due to traumatic meniscal tear

Dan Bergkvist a,*, Leif E. Dahlberg a, Jonas Bloch Thorlund b, Paul Neuman a, c, Caddie Zhou c, Martin Englund c, d

a Orthopedics, Department of Clinical Sciences Lund, Lund University, Lund, Sweden
b Department of Sports Science and Clinical Biomechanics, University of Southern Denmark, Odense, Denmark
c Clinical Epidemiology Unit, Orthopedics, Department of Clinical Sciences Lund, Lund University, Lund, Sweden
d Clinical Epidemiology Research & Training Unit, Boston University School of Medicine, Boston, MA, USA
e Department of Orthopaedics, Clinical Sciences, Malmö, Lund University, Sweden

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SUMMARY

Objective: There is limited knowledge on sick leave associated with arthroscopic partial meniscectomy (APM) due to traumatic meniscal tear and its potential gender differences. Thus, our aim was to determine gender-specific sick leave before and after APM.

Method: In Skåne region, Sweden, we identified patients, aged 18–59 years diagnosed with traumatic meniscal tear without ligament injury, who had APM during 2004–2012. For each patient, we randomly sampled four age- and sex-matched reference subjects from the general population. We retrieved social insurance register data of all-cause sick leave exceeding two weeks. We analyzed the proportions and duration of sick leave with respect to days of sick leave, age, and gender.

Results: The cohort comprised 604 patients (29% women), mean (SD) age 40 (11) years, and 2254 reference subjects. Thirty-nine percent of women and 27% of men had a sick leave period longer than 14 days after APM. Still, we found that a new period of sick leave longer than 14 days, initiated on the day of APM (and not before), was relatively uncommon and equally distributed (15%) between women and men.

Conclusion: About one-third of the patients have more than 2 weeks of sick leave after APM for a traumatic meniscal tear and women are overrepresented in this category. Prolonged sick leave initiated on the day of APM was relatively uncommon. Other factors than surgery seem to explain the prolonged sick leave.

1. Introduction

Arthroscopic partial meniscectomy (APM) of the knee is a common orthopaedic procedure [1,2] and the annual incidence is reported to be about 100–300 per 100,000 people per years, with relatively large differences between Scandinavian countries (Sweden, the lowest, Finland intermediate and Denmark the highest). Approximately one-fourth of these procedures are carried out on patients with a primary diagnosis of a traumatic meniscus tear and the remaining three quarters due to degenerative meniscus tears or osteoarthritis [3,4]. Knowledge on sick leave associated with APM due to traumatic meniscal tear is sparse. The duration of sick leave has been approximated to be 2–5 weeks, but a proportion of patients may have prolonged work incapacity [5,6]. Sick leave is usually self-reported and the agreement between self-report in the retrospective and high quality prospectively ascertained register data on duration of sick leave is poor [7,8]. To the best of our knowledge, the incidence and duration of sick leave, including potential gender differences, have not been properly investigated following this common surgical procedure. Sick leave is likely to occur after surgery and it is relevant for both professionals and society to know more of the effects of surgery and potential gender differences. Thus, we conducted a population-based study on a cohort of patients undergoing APM due to traumatic meniscal tear to determine sick leave as compared to the general population.

2. Material and methods

2.1. Study cohorts

We sampled the study cohort from the population of the Skåne region in southern Sweden (1.3 million inhabitants, 2012). All healthcare
provided in the region is registered in the Skåne Healthcare Register (SHR). All patient visits to a doctor and the diagnoses are registered according to the International Classification of Diseases and Related Health Problems 10 (ICD-10). If surgery is performed, the procedure triggers a surgical procedure code (Swedish version of NOMESCO Classification of Surgical Procedures; KRÅ97). From the SHR we retrieved data during a 9-year period, from January 1, 2004 through December 31, 2012. The inclusion criteria were: 1) age 18–59 years at diagnosis. Upper age limit was chosen because of the relatively high rate of early retirement or disability pension and low incidence of traumatic meniscal tear among patients 60 years or older. 2) A surgical procedure code of APM (NGD11) and a primary or secondary diagnosis code of a traumatic meniscal tear (S83.2), and 3) resident in the region one calendar year before the date of surgery. We excluded patients who had received a diagnosis of sprain and strain involving the cruciate ligament (S83.5), injury to multiple structures of knee (S83.7), and chronic instability of knee (M23.5). For each included subject, we randomly sampled 4 matched reference subjects from the general population in the region that at any time had a health care visit. The matching variables were sex, year of birth, and district of residence. We excluded all subjects (in both the study cohort and the reference cohort) with permanently reduced work ability or early retirement (disability pension).

2.2. Sick leave

Every individual in Sweden who cannot work owing to illness or injury is entitled to sickness benefit (financial compensation for reduced work capacity) starting on day 2 of the reported sickness period. All sick leave exceeding 7 days must be granted by a physician. For employed individuals, sickness benefit from day 2–14 is reimbursed by the employer. If the sick leave exceeds 14 days it is reimbursed by the Swedish Social Insurance Agency (SSIA). Thus, all data on sick leave periods lasting longer than 14 days are registered by the SSIA (all from day 1). For example, if a patient who is employed is on sick leave for 10 days, all reimbursement (for 9 days) is provided by the employer. This is not at all registered by the SSIA. However, if the patient is on sick leave for 20 days, i.e. an additional 6 days beyond the employer’s 14-day period, this is registered in the SSIA as 20 days of sick leave.

2.3. Data linkage

For each individual, we retrieved sick leave data from the register of SSIA from 12 months before until 24 months after the date of surgery (APM). The sick leave we retrieved is “all-cause” sick leave, thus the true reason(s) for the sick leave is challenging to ascertain. The date of the surgical procedure for each cohort subject was considered day 0 for her/his matched reference subjects. Absenteeism due to sickness or injury can be granted for a full working day (8 h), three-quarters, half or one-quarter of a working day. The reasons for these gender differences in sick leave are unclear but likely multifactorial. In a report from SSIA (www.forsakringskassan.se) social insurance report 2015:7) it is evident that already since 1967, women in general, have more sick days than men, but with some variations depending on the diagnosis. The same pattern is seen in several European countries, and several factors have been suggested, such as biological, work environment, responsibility for unpaid work in the home, and responsibility for the family situation [9–11]. This, together with a higher degree of part-time labour and a weaker position in labour market could also induce less incitement for return to work. The conception (or misconceptions) from the medical doctor on how much sick leave the patient requires could be biased based according to the patient’s gender. Importantly, the difference in sick leave between men and women does not seem to depend on the surgical intervention per se because the proportions of post-surgical sick leave were similar in women and men.

We calculated the mean number of days of sick leave with 95% confidence interval (CI) per 30-day period. Further, we calculated the proportion of patients with sick leave more than 14 days from the day of surgery (day 0) until the sick period ended. Finally, we also calculated the proportion of patients who did not have sick leave the preceding 30 days before surgery, but had a new period of sick leave starting at the day of surgery. In this group, we can be reasonably certain that the new sick leave initiated is attributable to the knee surgery itself.

3. Ethics statement

This study was approved by the Ethical Review Board of Lund University, Sweden.

4. Results

4.1. Study sample

During the 9 calendar years, 1188 patients had APM due to a diagnosis of traumatic meniscal tear. Of these, 557 patients were noted to have ligament injuries and were thus excluded from the study. The remaining 631 patients (with “isolated” traumatic meniscal tear) formed the preliminary study cohort for cross-linkage with sick leave data. In all, we obtained 2509 references (ratio 1 to 4) with matching variables of sex, year of birth and district of residence. In six cases we found less than four references as suitable matches, and in one case we couldn’t match any suitable references at all. After linkage with sick leave data, 27 patients from the study cohort and 255 individuals from the reference cohort were excluded due to permanently reduced work ability, early retirement or the study individual had been excluded because of reduced work ability or early retirement (Fig. 1). Thus, the final study cohort consisted of 604 patients and 2254 reference subjects (Table 1).

4.2. All-cause sick leave

At 12 months before index surgery, the mean all-cause sick leave exceeding 14 days, in the patient cohort marginally differed from the reference subjects. At 3 months prior to surgery, the number of sick days in the patient cohort increased and peaked at time of surgery (day 0–30) and then sharply declined the following two months (Figs. 2 and 3). Of the women, 39% (CI 95% 32–46), had sick leave (new or ongoing) following the surgery registered by the SSIA, i.e., exceeding 14 days. The corresponding proportion of men was 27% (CI 95% 23–31). In the reference cohort, the proportion of individuals on sick leave exceeding 14 days displayed only minor variations; women mean (95%CI) 6% (4–8) (min max) (5–8) and men mean (95%CI) 3% (3–4) (min-max) (3–4).

4.2.1. Sick leave initiated at surgery

A new period of sick leave initiated at the date of surgery registered by the SSIA (and no sick leave the prior 30 days) was recorded for 28 women (15%), mean (SD) age 45 (10) years and for 62 men (15%), mean (SD) age 41 (9) years.

5. Discussion

This population-based cohort study shows that in patients having APM for an isolated traumatic meniscal tear, one-third of patients had more than 14 days of sick leave. Interestingly, on average the women have a higher peak and longer duration of sick leave compared with men. A larger proportion of the women than men had prolonged sick leave. When a new period of sick leave is initiated from the day of surgery (i.e., no sick leave 30 days before surgery), there appears, however, to be no major gender differences and only 15% had prolonged sick leave.

The reasons for these gender differences in sick leave are unclear but likely multifactorial. In a report from SSIA (www.forsakringskassan.se) social insurance report 2015:7) it is evident that already since 1967, women in general, have more sick days than men, but with some variations depending on the diagnosis. The same pattern is seen in several European countries, and several factors have been suggested, such as biological, work environment, responsibility for unpaid work in the home, and responsibility for the family situation [9–11]. This, together with a higher degree of part-time labour and a weaker position in labour market could also induce less incitement for return to work. The conception (or misconceptions) from the medical doctor on how much sick leave the patient requires could be biased based according to the patient’s gender. Importantly, the difference in sick leave between men and women does not seem to depend on the surgical intervention per se because the proportions of post-surgical sick leave were similar in women and men.
and men, i.e., sick leave lasting for more than 2 weeks, initiated on the day of surgery. Still, the actual number of sick days tended to be somewhat higher in women than men also in this subset. Women in this study were on average four years older than men, and it is possible that this age difference may influence sick leave, but in general, younger women had the same, or even slightly higher sick leave when comparing women 39–43 years old (www.forsakringskassan.se/statistik/).

In the year 2004, the sick benefit was reimbursed by the employer for three and not 2 weeks as it was from the years 2005–2012. This will slightly underestimate the mean sick leave days and the proportion of patients on sick leave, however likely to be equally distributed between men/women and patients/references. Naturally, the premises for sick leave and its reimbursement could vary substantially between different countries and therefore give varying number of sick leave days for this type of injury/surgery.

Table 1
Demographics of the final study sample.

|                      | Case cohort (N = 604) | Reference cohort (N = 2254) |
|----------------------|-----------------------|-----------------------------|
| n (%)                | Mean (SD) age         | n (%)                       | Mean (SD) age         |
| Men                  | 426 (71)              | 1613 (72)                   | 39 (11)               |
| Women                | 178 (29)              | 641 (28)                    | 42 (11)               |
| Total                | 604 (100)             | 2254 (100)                  | 40 (11)               |
believe that, the outcome in this study regarding prolonged sick leave (>2 weeks) is relevant to approximate the postoperative limitations in knee function and therefore generalizable to some degree.

We excluded patients with diagnosis: sprain and strain involving cruciate ligament of the knee, injury to multiple structures of the knee, and chronic instability of the knee to confine the study sample to those with an isolated traumatic meniscal tear. Excluded patients are likely to have obtained a more severe forceful knee injury than with meniscal tear only. The mean age in this group (the excluded) were markedly lower (six years) than in the final study sample. This could suggest that isolated meniscal tear, although defined as traumatic on the Swedish translation of S83.2, tends to be more common in the older patient category where less (or no) trauma is needed to result in a meniscal tear, possibly due to early degenerative processes [12,13]. Further, we have not studied sick leave associated with meniscus repair, only those having APM.

The strengths of this study include the population-based matched-cohort design, inclusion of all public health care in the region, and the use of high quality sick leave data prospectively registered by the SSIA rather than self-report. The most important limitation is that short sick leave (sick leave up to 14 days = the employers’ sick pay period) are not registered. This will lead to underestimation in the graphs of the mean number of sick days, but will not affect the patterns and proportions of patients with sick leave exceeding 14 days.

In conclusion, one-third of the patients have more than 2 weeks of sick leave after APM for a traumatic meniscal tear and women are overrepresented in this category. This is likely related to other factors than the knee arthroscopy itself. Our observational data is relevant to physicians when discussing the treatment options and expectations of return to work with the patient with a traumatic meniscal tear. The gender discrepancies in sick leave post APM as well as the sick leave associated with meniscus repair warrant further attention.

Author contribution

DB, ME LD; conception and design of the study, analysis and interpretation of data, CZ; Acquisition of data, analysis of data. JBT and PN; Analysis and interpretation of data. All authors participated in revising manuscript and final approval.

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Level of evidence

Therapeutic, level III

Declaration of Competing Interest

No competing interests declared.

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