REGION KRONOBERG

Prevalence of Thumb Basal Joint Osteoarthritis and Psychiatric Comorbidity

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Introduktion/bakgrund

Thumb basal joint arthritis is one of the most common osteoarthritis in the hand. It affects the first carpometocarpal joint (CMC-1). It is a saddle-shaped shallow joint enabling the thumb with a great range of motion. Due to its shallow nature, it depends on ligaments for its stability. The joint also experiences a lot of force transmitting through, up to 13 more than the tip of the thumb. Ligamentous instability, independence of cause, along with the forces the joint experience makes it very suspectable to develop osteoarthritis (OA). (1)

Early symptoms of CMC-1 OA usually start with diffuse radial wrist pain when using the thumb in manual labor but disappear when resting. When the disease progresses symptoms can affect the range of motion of the thumb, more easily triggered pain and decreased function. This can progress into persistent pain and decrease quality of life. (2, 3)

Radiographic characteristics include osteophytes, trapeziometacarpal joint space narrowing and subluxation of the joint. In 1973 Eaton and Littler described four radiographic stages for CMC-1 OA. (4)It was later modified to include the scaphotrapezial joint. However, radiographic changes does not correlate with clinical presentations.(5)
Initial treatment of CMC-1 OA relies on a combination of physiotherapy, orthosis and activity modification. It is sometimes complemented with intra articular injections of corticosteroids which have limited evidence. (6)

When conservative treatment fails there are different surgical options. The standard procedure in Sweden nowadays is excision of trapezium with a combination of some kind of interposition arthroplasty. Other surgical options are arthrodesis or arthroplasty, which popularity has risen since the use of the next generation of prothesis. There are different advantages and disadvantages to every surgical procedure, but the common surgical indication is persistent pain. (7) However, pain is a subjective feeling, and we know that people react differently when exposed to a similar type of pain stimulus.(8)

There are a few studies that have investigated the incidence of radiographic CMC-1 OA. Teunissen et al showed a prevalence of 25.3% of radiographic OA in patients older than 55 years.

It became increasingly more common as the patient grew older and it was more common among females. (9) A meta-analysis showed a prevalence of radiographic CMC-1 OA among 50-year-old of 5,8% for males and 7,3% for females. The numbers for 80-year-olds were 33,1% for males and 39,0% for females.(10)

In 2014 Moriatis Wolf et al published a prevalence of 1,4% of CMC-1 OA in a Swedish population (Skåne) from 1998 to 2012. They did not use radiographic findings for diagnosis instead they used data from patients health records i.e. clinical diagnosis. In patients older than 50 years old the prevalence was 1,3% for males and 4,2% for females. They showed that the point prevalence increased with rising age and was more common among females, but the prevalence peaked around 5%. (11)They did not, however, had access to data from all patients as private health care providers were not included during the full duration of their investigation period.

As noted, there is a discrepancy between radiographic findings and clinical findings and it is not necessary that radiographic CMC-1 OA gives significant symptoms.

Studies have shown that it is common for patients diagnosed with OA, regardless of joint affected, to suffer from anxiety and depression. (12) A meta-analysis also showed that patients with both OA and anxiety or depression rate their pain higher. There was also a correlation between the severity of pain with the levels of anxiety or depression. (13)
Studies has also shown that patients with anxiety or depression are more likely to suffer from chronic pain. (14)

To our knowledge there are no studies investigating the prevalence of concomitant psychiatric comorbidity in patients with CMC-1 OA or any OA affecting the hand.

Syfte

The aim of this study was to investigate the possible changed prevalence of doctor diagnosed CMC-1 OA and the prevalence of psychiatric comorbidity among these patients.

Material och metod

Skåne Health Care Register is a register collecting data regarding patients' health care contacts in public financed health care. They collect data from primary and secondary health care providers, both in- and outpatient clinics. They collect information from both public and private health care providers. The register provides diagnoses provided by doctors in patients health care journals, ie clinical diagnoses. It has been used in many peer-reviewed articles and is considered a reliable data source for research.(15)

We asked the register for all patients diagnosed with CMC-1 OA using the International Statistical Classification of Diseases and Related Health Problems (ICD-10) code M18(M181, M182, M183, M184, M185 and M189) from 2004 to 2024. Among these patients we also collected information regarding age, gender and whether they had any psychiatric diagnoses (ICD-10 F2-F69) registered during this period. Since the register is linked to each person´s unique personal number only one diagnostic code of M18 and F2-F69 is counted per patient. We also collected the first time during this period when the patients were diagnosed with CMC-1 OA and what age they were.
The Skåne region population of December 31, 2024, was used as a denominator. Information taken from Statistic Sweden (SCB). With this information we plan to calculate the age prevalence and the 2024 incidence proportion of CMC-1 OA i.e. the number of patients diagnosed with CMC-1 OA in 2024 without having no prior record during our investigation timespan.

We also plan to make a sensitivity analysis using the 2024 incidence proportion and multiply it with the expected mean disease duration to calculate the expected point prevalence. The mean disease duration is calculated using the expected remaining years of life and adding it to the mean age of the first time when diagnosed with CMC-1 OA. Data on age-specific life expectancy is derived from Statistic Sweden.

Etik

Ethical permission was approved by Swedish Ethical Review Authority and a specific regional permission was also received from Region Skåne.

Tidsplan

The data collection has been finished. We are planning for submission with a final manuscript by June 2025.

Finansiering

This study will be conducted under Region Kronoberg resident program. Dr Zimmerman has received ALF fundings for this research.

Referenser

1. Higginbotham C, Boyd A, Busch M, Heaton D, Trumble T. Optimal management of thumb basal joint arthritis: challenges and solutions. Orthopedic Research and Reviews. 2017;Volume 9:93-9.
2. Berger AJ, Meals RA. Management of osteoarthrosis of the thumb joints. J Hand Surg Am. 2015;40(4):843-50.
3. Haugen IK, Felson DT, Abhishek A, Berenbaum F, Bierma-Zeinstra S, Dziedzic KS, et al. 2023 EULAR classification criteria for hand osteoarthritis. Ann Rheum Dis. 2024;83(11):1428-35.
4. Eaton RG, Glickel SZ. Trapeziometacarpal osteoarthritis. Staging as a rationale for treatment. Hand Clin. 1987;3(4):455-71.
5. Dahaghin S, Bierma-Zeinstra SM, Ginai AZ, Pols HA, Hazes JM, Koes BW. Prevalence and pattern of radiographic hand osteoarthritis and association with pain and disability (the Rotterdam study). Ann Rheum Dis. 2005;64(5):682-7.
6. Spaans AJ, Van Minnen LP, Kon M, Schuurman AH, Schreuders AR, Vermeulen GM. Conservative Treatment of Thumb Base Osteoarthritis: A Systematic Review. The Journal of Hand Surgery. 2015;40(1):16-21.e6.
7. Lifchez SD. Surgical Treatment of Thumb Basal Joint Arthritis: From Eaton's Tendon Interposition to Denervation. J Hand Surg Am. 2025;50(3):350-1.
8. Loeser JD, Melzack R. Pain: an overview. Lancet. 1999;353(9164):1607-9.
9. Teunissen JS, Wouters RM, Bierma-Zeintra SMA, van Meurs JBJ, Schreuders TAR, Zuidam JM, et al. The prevalence, incidence, and progression of radiographic thumb base osteoarthritis in a population-based cohort: the Rotterdam Study. Osteoarthritis Cartilage. 2022;30(4):578-85.
10. Van Der Oest MJW, Duraku LS, Andrinopoulou ER, Wouters RM, Bierma-Zeinstra SMA, Selles RW, et al. The prevalence of radiographic thumb base osteoarthritis: a meta-analysis. Osteoarthritis and Cartilage. 2021;29(6):785-92.
11. Moriatis Wolf J, Turkiewicz A, Atroshi I, Englund M. Prevalence of doctor-diagnosed thumb carpometacarpal joint osteoarthritis: an analysis of Swedish health care. Arthritis Care Res (Hoboken). 2014;66(6):961-5.
12. Stubbs B, Aluko Y, Myint PK, Smith TO. Prevalence of depressive symptoms and anxiety in osteoarthritis: a systematic review and meta-analysis. Age and Ageing. 2016;45(2):228-35.
13. Fonseca-Rodrigues D, Rodrigues A, Martins T, Pinto J, Amorim D, Almeida A, et al. Correlation between pain severity and levels of anxiety and depression in osteoarthritis patients: a systematic review and meta-analysis. Rheumatology. 2021;61(1):53-75.
14. De Heer EW, Gerrits MMJG, Beekman ATF, Dekker J, Van Marwijk HWJ, De Waal MWM, et al. The Association of Depression and Anxiety with Pain: A Study from NESDA. PLoS ONE. 2014;9(10):e106907.
15. Löfvendahl S, Schelin MEC, Jöud A. The value of the Skåne Health-care Register: Prospectively collected individual-level data for population-based studies. Scandinavian Journal of Public Health. 2020;48(1):56-63.