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General introduction

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GENERAL INTRODUCTION

Knee complaints in general practice

General Practitioners (GPs) are often consulted by patients with knee complaints. Within the field of musculoskeletal disorders, knee complaints are after low back pain the second most frequent reason for consulting the GP.[1] The incidence and prevalence of knee complaints in the Netherlands in general practice are estimated at 20 and 30 per 1000 persons per year respectively.[1] The cause of the knee complaints can be non-traumatic or traumatic. Traumatic knee complaints are knee complaints due to a trauma of the knee or are at least of a sudden onset, and therefore likely to be traumatic. A trauma of the knee most frequently occurs during sports and the most frequently seen mechanism of the trauma is a rotation of the knee.[2] Structural abnormalities seen after a trauma of the knee are: a bone bruise, fracture, and/or soft tissue injuries such as lesions of menisci, cruciate ligaments, collateral ligaments and muscles.[3-5] The incidence and prevalence of traumatic knee complaints in the Netherlands in general practice are estimated at 5.3 and 6.8 per 1000 persons per year respectively.[1] Traumatic knee complaints have a substantial impact on functional disability in daily living and sports participation, as well as healthcare and non-healthcare costs.

Treatment of traumatic knee complaints

Recommendations for diagnosis and management of patients with traumatic knee complaints presenting in primary care in the Netherlands are described in the clinical guideline ‘traumatic knee complaints’ issued by the Dutch College of General Practitioners in 2010.[3] At GPs’ initial consult an urgent referral to a medical specialist is needed when there are signs of a fracture, an acute locked knee or severe complaints after patella dislocation.[3] If not, patients are managed conservatively which comprises information about the course of the knee complaints and the advice to load the knee within the pain threshold. If indicated, medication for pain reduction is described and/or patients are referred to physiotherapy. In case of persistent limitations or instability of the knee in function of daily living, sports or during work, the GP can refer the patient to an orthopaedic surgeon. The results of an observational cohort showed that at one year follow-up 57% of the patients with traumatic knee complaints in the Netherlands consulted their GP more than once, about one third was referred to physiotherapy and 21% were referred to an orthopaedic surgeon.[2] The orthopaedic surgeon may decide to perform radiographic imaging or magnetic resonance (MR) imaging of the knee, and subsequently continue the wait-and-see policy. Alternatively, depending on the state and/or duration of symptoms, arthroscopic surgery may be performed.[6,7]

Magnetic Resonance Imaging

For GPs diagnosing other knee injuries than fracture or locked knee is very difficult.[8-11] An MR scan of the knee enables the GP to establish a more specific diagnosis or to exclude other diagnoses

with more certainty than with history taking and physical examination. The knowledge of the presence or absence of structural abnormalities seen on the MR scan is used for deciding on subsequent treatment and referral for patients with traumatic knee complaints. MR imaging is a powerful diagnostic tool used in secondary care for detecting lesions of ligaments, tendons, bone, cartilage and menisci.[5,12,13] For anterior cruciate ligament (ACL) tears, MR imaging has a sensitivity of 87% and a specificity of 93%; for medial meniscal tears this is 89% and 88%, respectively; and for lateral meniscal tears this is 78% and 98%, respectively in patients with suspected ACL and/or meniscal tears.[14] In addition, MR imaging in secondary care decreases the number of diagnostic arthroscopies.[15,16]

Direct referral to MR imaging might be a valuable tool for GPs in making appropriate and informed decisions. A previous randomised controlled trial showed that MR scan referral by the GP prior to a provisional orthopaedic appointment yielded significant benefits in patients' knee related quality of life when compared with direct referral to an orthopaedic surgeon.[17] However, the selection of patients with suspected internal derangement of the knee for whom their GP was considering referral to an orthopaedic specialist in secondary care complicated the generalisability of that study. Also, no difference between the groups for changes in diagnosis or treatment plans was found in these patients.[18] Therefore, MR imaging after referral by the GP is not recommended in the Dutch clinical guideline 'traumatic knee complaints' for GPs.[3]

However, it remains unclear if MR imaging after referral by the GP in a more early stage (if there is no orthopaedic appointment yet) is (cost)effective when compared to a wait-and-see policy in general practice (without an MR scan). In this stage, negative MR findings may enable GPs to reassure patients, treat them conservatively and avoid unnecessary orthopaedic referrals and positive MR findings could confirm the GPs' diagnoses and the decision either to advice conservative treatment or to refer to an orthopaedic surgeon in a more early stage. On the other hand, MR imaging of the knee in general practice may lead to incidental asymptomatic findings, with subsequent unnecessary healthcare costs as well as worried patients.

Aim of this thesis

The diagnostic value and cost-effectiveness of direct access by the GP to knee MR imaging is unknown. Whether MR imaging of the knee should enter the diagnostic pathway in primary care through direct access by the GP, depends on whether it improves patient outcome, reduces costs and affects subsequent diagnosis and management. Therefore, the primary aims of this thesis were to describe over a period of 1-year follow-up:

- whether MR imaging referral by the GP is non-inferior compared to usual care in patients with persistent traumatic knee complaints regarding self-reported knee related daily function, and
- whether MR imaging referral by the GP is cost-effective compared to usual care in patients with persistent traumatic knee complaints.

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