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To cite this article: Sita M.A. Bierma-zeinstra, Stefan Lipschart, Khing H. Njoo, Roos Bernsen, Jan Verhaar, Ad Prins, Arthur M. Bohnen (2000) How do general practitioners manage hip problems in adults?, *Scandinavian Journal of Primary Health Care*, 18:3, 159-164, DOI: [10.1080/028134300453368](https://doi.org/10.1080/028134300453368)

To link to this article: <https://doi.org/10.1080/028134300453368>



Published online: 12 Jul 2009.



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How do general practitioners manage hip problems in adults?

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Scand J Prim Health Care 2000;18:159–164. ISSN 0281-3432

Objective – To investigate the medical management, and its consistency and determinants, of hip problems in adult patients.

Setting – General practice, The Netherlands.

Design – Observational study based on four “paper patients” and on computerised patients records (CPRs) of 400 patients (20 per general practitioner), aged 50 years and over, with new hip problems.

Subjects – 20 general practitioners.

Main outcome measures – Examination, diagnosis and treatment of hip patients.

Results – Medical history and physical examination consisted mainly of questions concerning pain localisation and onset, and examining passive hip motion. The paper patients, except for the one with alarming symptoms, and the CPRs showed high variation in management between general practitioners, particularly for medication prescription and X-ray requests. Main factors influencing medical management were patients’ age, number of visits and attitude of the

individual general practitioner. A specific diagnosis was registered for only 32% of the 400 patients. The diagnosis osteoarthritis varied greatly between general practitioners even after adjustment for patients’ age, gender and number of visits. Patients with osteoarthritis were infrequently referred to physical therapy and received non-steroidal anti-inflammatory drugs (NSAIDs) more often than paracetamol.

Conclusion – Diagnosis and treatment of hip problems varies widely between general practitioners. Treatment of patients with osteoarthritis is inconsistent with published recommendations.

Key words: general practice, hip disorder, practice variation, guidelines.

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Hip problems have an adverse effect on mobility and daily functioning, and with the increasing number of elderly, the prevalence of hip problems is expected to increase (1,2). A Dutch study of the general population aged 55 years and over ($n = 2895$) revealed that 16.6% of the women and 8.3% of the men reported hip pain (3).

From the National Survey of Morbidity and Interventions (2) we know that 11 patients a year consult an average general practice (2500 patients) for new hip problems. One-third of these patients receives the diagnosis osteoarthritis (OA), one-third another specific diagnosis, and one-third no specific diagnosis. The general practitioner (GP) is in these problems the first physician to be consulted and directs the medical care for these patients for many years. The GP has a number of diagnostic and therapeutic interventions at his or her disposal for patients with hip problems, but there is a lack of practice guidelines for these patients in primary care. However, some recommendations for the management of OA of the hip have been published (4–6). These recommendations contain initial treatment with paracetamol in order to avoid the side effects of non-steroidal anti-inflammatory drugs (NSAIDs). They also recommend physical therapy to improve the range of movement and muscle strength.

A large practice variation and/or deviation from available recommendations would necessitate the need for standardised and widely accepted guidelines. No detailed information about medical management, and consistency of such management, in different hip disorders is available. The aim of this study was to investigate the actual management in general practice of adult patients with hip problems, and the consistency and determinants of this management.

MATERIAL AND METHODS

GPs’ management of hip problems in elderly patients was studied in two ways. In method I, four “paper patients” with hip problems were presented to 20 GPs. In method II, the computerised patient records (CPRs) of 400 patients with new hip problems were analysed over a 2-year period. Both studies took place in 1996.

General practitioners

Twenty GPs (15 male and 5 female) in 14 practices in or near Rotterdam participated. They all worked for more than 5 years with CPRs using the same software (ELIAS). None used paper records. The same GPs participated in both method I and II.

Method I: "paper patients"

The four paper patients were based on existing patients (Table I) and were presented to the GP in an interactive way, which simulated a clinical setting. The GP was presented with the written patient record, consisting of the previous medical history of the patient together with the present reason for encounter (pain in the hip). The GP was now asked to perform a history taking and state the intended physical examination. For each paper patient a list with the results of all possible items of history taking and

physical examination was prepared beforehand. The researcher played the role of the patient, answered all questions according to the list, and noted all items that the GP addressed. At the end of history taking and physical examination, pathological results of items that had not been addressed were reported to the GP in order to ensure that they all had the same information before they decided about further management. Patients A, B and C had 3 repeated consultations at 1, 6 and 18 months, whereas patient D had these three repeated consultations within 1 month.

Table I. Short description of abnormal findings in the paper patients.

Paper patient	Abnormal findings
Paper (Female, age 70 years, mild hip OA)	Aching pain in left groin for 3 months, dull pain in left anterior thigh especially with prolonged walking or standing Morning stiffness Decreased walking distance Trendelenburg sign positive on the left side Internal rotation, flexion, abduction and extension of the hip slightly painful in active movement and painful in passive movement, slightly decreased movement in all directions on the left side Mild radiological osteoarthritis on the left side, doubtful radiological osteoarthritis on the other side
Patient B (Male, age 52 years, moderate OA)	Dull pain in left groin for 3 months which is progressing Pain continuously, worsening in walking and by lying on the side After overuse pain in the evening, pain when lying on the left side Varus deviation in both knees Hip joint capsule in left groin painful at palpation Active and passive movements of the left hip, except adduction, painful; also decreased motion in these movements with the accent on internal rotation, abduction extension and flexion Extension of both knees and flexion of one knee slightly decreased Muscle resistance test for internal and external rotation of the left hip painful Pain on sacroiliacal provocation on the left side Moderate radiological osteoarthritis on the left side
Patient C (Male, age 60 years, soft tissue diagnosis)	Dull pain for 1 month on the right side in groin, buttock and inner thigh Pain almost continuously, but worsens during and after walking and during sitting Active and passive adduction, extension, and flexion are painful on the right side but not decreased Groin and buttock muscles painful at palpation on the right side
Patient D (Female, age 70 years, hidden fracture without major trauma caused by secondary osteoporosis)	Heavy pain in right groin referred to knee, especially during walking and standing Pain appeared 2 days ago after rising from a chair Pain continuously 10 mg prednisolone daily (oral) for polymyalgia rheumatica Decreased load on the painful side under walking Trendelenburg sign not possible on the right side because of pain Active and passive internal and external rotation painful, no decreased motion on the right side Thigh muscles painful at palpation (both sides) Resistance test for the thigh muscles painful (both sides) Radiological intertrochanteric fracture on the painful side

Medication was defined as the prescription of paracetamol, NSAIDs or corticosteroid injections.

Method II: computerised patient records

The investigator identified eligible CPRs of patients aged 50 years and over. Search criteria included terminology concerning hip problems in the free text and diagnostic ICPC codes L13, L14 and L89 (7) related to hip problems. From each participating GP, 20 CPRs of the identified patients who complied with the inclusion criteria were selected at random.

Inclusion criteria

- Presenting with a new hip problem (pain in the hip region without a consultation for hip problems over the last 3 years).
- Aged 50 years or over at the time of the consultation for a new hip problem.
- A CPR available for the 3 years preceding and 2 years following the current consultation for a new hip problem.

Exclusion criteria

- Presence of a hip prosthesis
- Presenting after an acute trauma of the hip.

The 400 patients with new hip problems were followed in the CPR for 2 years. The patients' diagnosis and management registered in the CPR, were noted by the investigator.

Statistical analyses

Differences in examination or management between the four paper patients were tested with a χ^2 test. On the basis of the 400 CPRs, determinants of management were analysed in multilevel logistic regression analysis. This "multilevel" technique takes both the variation due to GPs and the variation due to patients into account (8). Sampling units on level 1 were patients and sampling units on level 2 were GPs (patients nested within GPs). As independent factors were defined: age and gender of the patient, recorded diagnosis, and number of visits made per patient for hip problems during the 2-year follow-up. In each analysis one type of management during this period was defined as the dependent variable. Receiving medication as well as receiving NSAIDs were analysed separately. Finally, the variance in management due to the general practitioner, estimated by multilevel logistic regression analysis, was translated into a 95% tolerance interval of the probability to receive one type of management during the first visit given a specific age, gender and diagnosis of the patient.

RESULTS

Paper patients

Table II presents an overview of the medical history taking and physical examination of the four paper patients; with increasing unanimity between the GPs, the values in the table should approximate 0% or 100%.

History taking. Exact pain location, pain onset and pain excitation was asked about by almost every GP. The GPs inquired about nocturnal pain more often with patient A and B ($p = 0.05$) compared with patient C and D, and about overuse of the hip with patient C ($p = 0.04$) compared with the other patients.

Physical examination. Almost all GPs examined passive joint motion. The examination was similar for all patients, except for patient B and C who more often underwent palpation ($p = 0.01$).

Management. In management the GPs were most consistent with patient D (Table III). At the first consultation 70% of the GPs requested an X-ray; after receiving the results the patient was referred to orthopaedic surgery. The management was less consistent in the other cases except for non-referral to orthopaedic surgery at the first consultation. Few GPs referred patients to physical therapy or for blood sampling at the first visit. On subsequent visits referral to physical therapy increased. NSAIDs were prescribed (80%) more often than paracetamol (20%). Corticosteroid injections were not prescribed.

Computerised patient records (CPR)

Applying the specific search criteria, 1637 hip patients aged 50 years and over were identified. Of the 901 patients who met inclusion and exclusion criteria, 400 patients (20/GP) were randomly selected for analysis of their CPR.

Demographics. 259 CPRs (64%) concerned female patients with mean age 67 years (SD: 11 years) and 141 (36%) concerned males with mean age 64 years (SD: 10 years).

During the 2-years of follow-up most patients (67%) visited their GP only once for hip problems, 25% visited their GP twice and 8% more than twice.

Management. The data from the CPRs showed a large variation in management between GPs (Fig. 1). The largest variation was related to X-ray requests and prescription of medication. During the 2-years of follow-up, 141 patients were prescribed NSAIDs, 31 patients paracetamol and 8 patients local corticosteroids injections. Referral to physical therapy was doubled after 2 years compared with the first visit.

Table II. Medical history taking and physical examination of the four paper patients by 20 GPs (%). The percentages represent the proportion of 20 GPs who addressed these items of examination.

	Patient A Female, age 70 years, mild hip OA	Patient B Male, age 52 years, moderate hip OA	Patient C Male, age 60 years, soft tissue	Patient D Female, age 70 years, hidden fracture
<i>Medical history</i>				
Pain location	100	100	100	85
Pain character	45	65	75	55
Pain appearance	95	85	95	85
Pain duration	85	100	75	75
Continuance of pain	15	15	20	10
Nocturnal pain ¹	60	60	35	25
Morning stiffness	25	5	10	5
Joint stiffness	20	10	15	5
Daily functioning	10	5	5	5
Trauma	25	25	45	15
Overuse ¹	25	25	50	10
Self medication	10	0	5	25
<i>Inspection and physical investigation</i>				
Gait	60	45	45	55
Position of knee	35	30	20	15
Position of hip	45	35	30	25
Hip movements (active)	55	50	55	35
Hip movements (passive)	90	90	90	75
Back movements	25	30	35	15
Knee movements	15	15	10	15
Neurological investigation	10	15	30	5
Sacroiliacal provocation	10	5	15	0
Palpation ¹	35	60	75	30

¹ Statistical differences ($p < 0.05$) between the four paper patients revealed by χ^2 test.

Diagnosis. For most patients (68.3%) no specific diagnosis for the hip problem was recorded in the CPR during the 2-year period. Specific diagnoses that were recorded in the CPR can be categorised as: hip OA (18.5%), low-back disorders (4.8%), bursitis (3%), muscular disorders (3%) and other disorders (2.6%). The distribution of diagnoses varied between GPs; the number of patients who received the diagnosis hip OA varied between GPs from 5% to 50%. Multilevel logistic regression, adjusted for patients' age, gender and number of visits, revealed that a large part of the variation was due to the GP ($p = 0.07$).

Determinants. Gender of the patient did not influence the management. Only the prescription of medication was related to age: older patients were more likely to get medication (odds ratio 1.03, $p = 0.014$). Patients diagnosed as hip OA and patients with soft tissue diagnoses (bursitis and tendinitis) were less likely to be referred for X-ray investigation compared with patients with no specific diagnosis (odds ratio 0.38, $p = 0.003$ and odds ratio 0.24, $p = 0.014$, respectively). Patients with the diagnosis of hip OA also were less often referred to physical therapy compared

with patients with no specific diagnosis (odds ratio 0.41, $p = 0.028$). The increasing number of visits increased all types of management (odds ratios 1.84 to 3.4, $p < 0.0001$). GPs contributed considerably to the variation in X-ray requests and medication prescription. Table IV shows the variation in probability due to GPs to receive X-ray examination or medication at the first visit.

DISCUSSION

Demographic characteristics and distribution of specific diagnoses of the 400 patients corresponded with data of the National Survey of Morbidity and Interventions (2), indicating that we obtained a representative study sample. The higher percentage of unspecified hip problems in our data compared with the National Survey of Morbidity and Interventions (2) could be explained by the GPs awareness of the prospective data collection in the latter study. Data of X-ray requests, laboratory tests, prescription of medication referrals are always registered in the CPR, and are therefore considered reliable (9). Because the majority of Dutch GPs use CPRs to register the

Table III. Cumulative medical management of the four paper patients by 20 GPs (%). The percentages represent the proportion of 20 GPs who used these types of management.

	Patient A Female, age 70 years, mild hip OA				Patient B Male, age 52 years, moderate hip OA				Patient C Male, age 60 years, soft tissue				Patient D Female, age 70 years, hidden fracture			
	1	2	4		1	2	4		1	2	4		1	2	4	
Cumulative management after visit number																
X-ray ¹	40	70	95	60	80	80	80	25	45	75	70	75	70	25	30	90
Blood sampling	10	10	15	35	40	40	40	25	30	35	20	25	20	30	30	30
Medication ¹	55	70	85	20	40	40	60	50	55	60	15	30	15	30	30	30
Physical therapy ¹	5	55	75	20	55	55	80	25	75	90	10	10	10	10	10	10
Orthopaedic surgeon ¹	0	5	60	5	35	35	90	0	0	30	5	70	5	70	95	95

¹ Statistical differences ($p < 0.05$) between the four paper patients in management at one or more visits revealed by χ^2 test.

clinical data of patients, we assume that this GP selection did not influence the results.

Optimal standardisation of patients was achieved by using four paper patients. Although this method has proven valid (10), it carries the risk that GPs act in a more idealistic manner than in daily practice. For this reason we used two types of study design (paper patients and CPRs) and based our conclusions on both.

Both methods revealed inconsistencies, especially in medication prescription and X-ray requests. Next to the diagnosis and number of visits, GPs contributed considerably to the variability in X-ray requests after controlling for patients' age and gender. This may be explained by the uncertainty of GPs about additive value of X-rays in hip problems; few studies are available about this subject. Prescription of medication not only showed a high variability between GPs, but also differed from published recommendations (4–6). Most of the prescriptions were NSAIDs, particularly for patients with OA; although the additional benefit from NSAIDs compared with paracetamol is disputable (11,12). Strikingly, in this study older patients were more likely to receive medication while the risk on adverse effects of NSAIDs is increased in these patients (13).

Both methods showed that only a minority of the GPs referred patients with hip problems to a physiotherapist at the first consultation. During 2-year follow-up, patients with the diagnosis OA in the CPR, for whom physical therapy was recommended (4–6), received even less physical therapy than patients with no diagnosis.

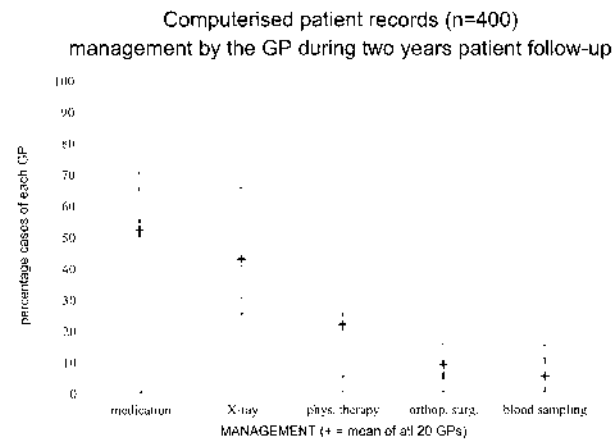


Fig. 1. Mean management of each GP in 20 randomly selected patients aged 50 years and over with hip problems.

Table IV. Tolerance interval of the probability (i.e. probability ± 1.96 SD) based on the 400 CPRs to receive an X-ray investigation or medication at the first visit given a specific age, diagnosis and gender. Patients 2–4 resemble paper patients A–C.

	X-ray request	Medication	NSAID
1. Female, 60 years, no specific diagnosis	0.25–0.68	0.19–0.75	0.10–0.64
2. Female, 70 years, osteoarthritis	0.12–0.46	0.16–0.70	0.10–0.64
3. Male, 52 years, osteoarthritis	0.12–0.46	0.10–0.58	0.10–0.64
4. Male, 60 years, soft tissue diagnosis	0.08–0.35	0.24–0.80	0.19–0.75

Variability in the number of patients registered by the GP as having OA is probably caused by the lack of standardisation of this diagnosis. Published criteria for the classification of OA of the hip (14), appeared invalid in general practice (15). During 2-year follow-up, 67% of the patients saw their GP only once. This may easily suggest that much of the hip pain is self-limiting. Miedema (2) showed that this is not the case; half of the patients who had consulted the GP for hip problems had persistent complaints 1 year after the first consultation.

Lack of proper diagnosis, practice variation in diagnosis and therapy, and use of non-recommended treatments may have a negative effect on patient outcome and increase costs. Therefore, widely accepted and evidence based guidelines for the diagnosis and treatment of adult patients in primary care with hip problems are needed.

ACKNOWLEDGEMENTS

We thank the GPs who participated in this study, including the members of the Rotterdam GP Registration and Research network (ROHAPRO), and Mrs A. van der Vlist, MD for data management.

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