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Research Article

Multimorbidity among Patients with Back Pain: A Study of Records at a Swedish Primary Health Care Centre

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Abstract

Introduction: Multimorbidity is defined as the simultaneous occurrence of several diseases where none of them is considered as the most important one. In Primary Care a large part of the visits consists of patients with pain disorders. Patients with back pain and diseases related to the spine constitute the largest group of these patients. However, little is known if patients with back pain have a higher degree of multimorbidity than patients without back pain. The aim of this epidemiological study was to investigate which were the most frequent simultaneously concurrent diseases together with back pain.

Method: We performed a cross-sectional study of all visits involving back pain to one Primary Health Care Centre in Stockholm, Sweden during the period October 2011 to September 2014. Patients over 20 years of age suffering from back pain were compared, concerning all their diagnoses and number of visits with those who were not diagnosed with back pain.

Results: Out of 12,017 adult patients, 971 had back pain; 57% women and 43% men. The patients with back pain had a higher degree of multimorbidity, more primary health care visits and more diagnoses compared to those without back pain. For essentially all of the 20 most common diagnoses the patients with back pain had a higher prevalence ratio. Most evident among these diagnoses was abdominal pain, which had twice as high prevalence among patients with back pain compared to those without.

Discussion: Our study showed that patients with back pain had a higher degree of multimorbidity compared to those who did not have back pain. The most frequent concurrent diseases were other pain disorders especially abdominal pain. This finding raises the question if there may be some connection between the innervation from the spine and this concurrent disorder.

Keywords: Multimorbidity; Primary Care; Back Pain

Introduction

The concept of multimorbidity is defined as the simultaneous presence of several diseases where none of them is seen as an index disease. The concept has been defined and developed in earlier studies [1,2]. Several studies start to appear showing demographically which kind of multimorbidity that is present for some specific diseases in Sweden [3-5]. Some, but very few, studies about multimorbidity display what research is going on internationally [6,7]. In primary care, where patients often present with a multitude of symptoms and diagnosis it is especially important to be able investigate if there are patterns of multimorbidity. Patterns of multimorbidity have been found among patients with back pain who often suffer from pain in other parts of the body [8-10]. A great part of the activity within primary care relates to back pain and its treatment; this group of patients is the single most important one among patients with pain. Patients with back pain have a very difficult situation with chronic pain, often including heavy sick leave. Swedish studies describing back pain in health care have been published but none in a primary care setting [4].

The main purpose of our study was to describe multimorbidity in a primary care setting in adult patients with back pain and to compare these patients with those who did not have back pain. The main research questions were: "Gender and age distribution among patients with back pain?" "Do patients with back pain

have more diagnoses and what are the multimorbidity patterns?" "Which concurrent diagnoses do patients have with back pain?"

Our study was approved by the ethical committee in Stockholm (Dnr: 2015/232-31/5).

Method

This study is a cross-sectional approach based on electronic patients' records data from the Kallhäll Primary Health Care Centre (PHCC). Data were extracted from the medical records where ID-numbers were decoded before analysis. The decoding was carried out at the extraction from the electronic system where each individual obtained a serial number impossible to link to the individual patient.

Information regarding all patients' visits to physicians at the PHCC between 2011-10-01 and 2014-09-30 was retrieved. Data used were the age of the patient, date of their visits and all their diagnoses.

Patients above 20 years of age and with back pain were included who were identified with at least one of the following three diagnoses: M544 (Lumbago with sciatica), M545 (Lumbago) and M549 (Unspecified back pain). The group of patients with back pain was compared with a control group consisting of all patients, excluding those with back pain, that visited the PHCC during the period mentioned. The inclusion procedure is graphically presented in Figure 1.

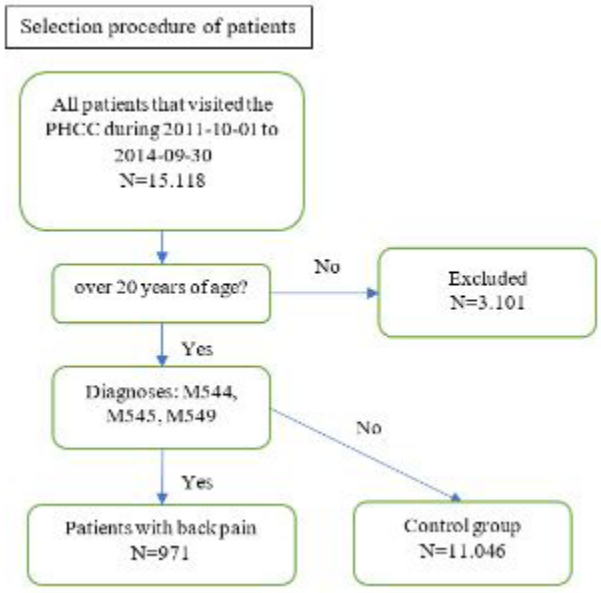

Figure 1: Inclusion procedure flowchart.

All diagnoses from each individual were extracted. Statistical calculations were done in PAST 2.17. For the hypothesis test for the number of diagnoses and the number of different unique diagnoses the Wilcoxons signed rank test was used. Administrative diagnoses (Z*) were removed in the presentation of diagnoses.

Results

The total number of patients visiting the PHCC during the 3-year period amounted to 15,118. The number of patients in the control group was 11,046 and those with back pain were 971. The gender distribution among the latter was 57% women and 43% men.

The prevalence of back pain in different age intervals is shown in Figure 2. There was a trend of increasing prevalence of back pain during the first 30 years of working life.

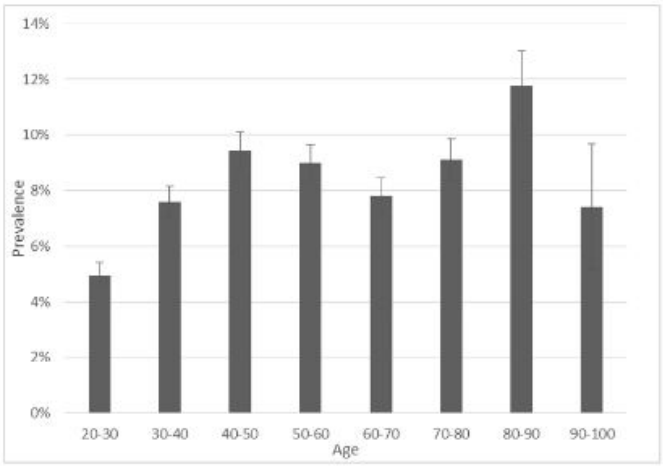

Figure 2: Prevalence of back pain in different age intervals.

The difference between patients with back pain and the control group in number of diagnoses (median), number of different unique diagnoses (median) and visits (median) is shown in Table 1.

	Patients with back pain	Control group	P-value
Diagnoses	10	5	0.0001
Different unique diagnoses	7	4	0.0001
Visits to physician	8	4	0.0001

Table 1: Difference between patients with back pain and the control group in number of diagnoses (median), number of different unique diagnoses (median) and visits (median) with hypothesis test (Wilcoxons signed rank test).

There were significantly more diagnoses and a higher degree of multimorbidity among patients with back pain than among patients in the control group. The patients with back pain had twice the number of visits to the PHCC compared to the control group.

The multimorbidity pattern among patients with back pain is presented in Figure 3 where the 20 most prevalent diagnoses are listed. Abdominal pain (R104) and other general pain diagnoses (R529, M791, M255) had the highest prevalence ratio concurrent with back pain.

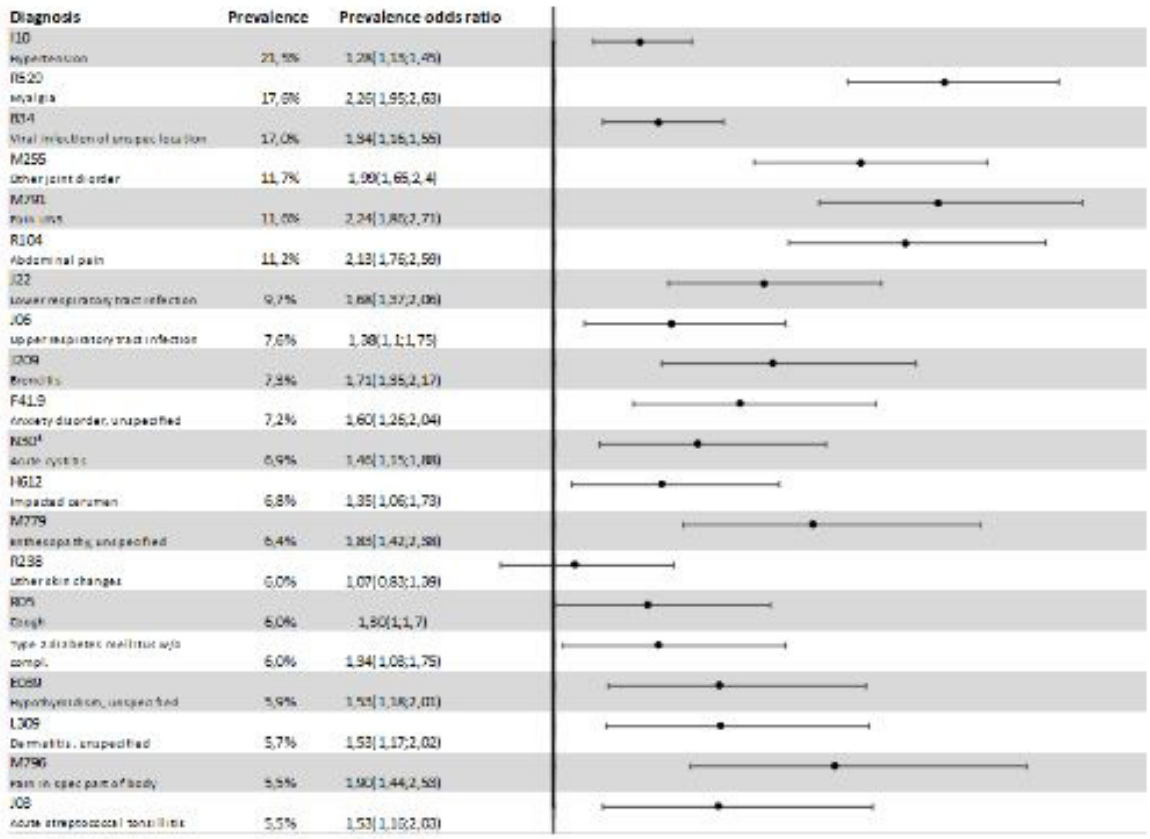

Figure 3: Forest diagram and table showing the prevalence ratio for the 20 most common diagnoses in the group of patients with back pain.

Discussion

Our cross-sectional study in a primary care setting showed that patients with back pain suffer from a higher degree of multimorbidity compared to patients without back pain. Our study also showed that patients with back pain have an overrepresentation of other general pain diagnoses. The most striking comorbidity with back pain was abdominal pain.

Our finding that patients with back pain have a higher degree of multimorbidity is in accordance with earlier studies [4,6]. This is an important finding because back pain seems to be a predictor of more widespread pain [14-16]. For example, Hagen, et al. found that patients with low back pain have more widespread from other parts of the spine [16]. Furthermore, a recent study about multimorbidity patterns and chronic pain in elderly showed that the most important predictor of a higher pain level was low back problems [11].

Our finding that abdominal pain was the most common comorbidity with back pain is a novel finding in comorbidity studies. However, a few earlier studies note a possible linkage between back pain and abdominal pain [12,13]. For example, Lackner, et al. found a linkage between IBS and back pain and that this combination was consistently associated with greater illness and symptom burdens [16].

Our finding of an increasing prevalence of back pain during the first 30 years of working life is in accordance with earlier studies [8,9,15]. For example, Hult found an increasing prevalence of spinal pain during the first 30 years of working life in a large study of 1200 workers in the 1950s [17].

Strength and Limitations

The strength of our study is that every diagnosis for each patient in the PHCC is included. Thus our study is not based on only a sample of the current population but is including the population as a whole.

The main limitation of our study is that a relatively limited number of patients with back pain are involved (971 individuals). This limited our study to identify only the most common concurrent diagnoses. A further limitation was that our study analysed multimorbidity over a 3-year period. The ideal time span to describe and analyse multimorbidity may be longer.

Future Research

Future studies may benefit from a larger population and may include children and stratify by age. Also, prospective cohort studies might give a better understanding of how multimorbidity patterns develop over time [7]. Our study demonstrated an increased degree of multimorbidity in other common diseases as hypertension and hypothyreosis. These correlations are difficult to understand from a pure neuropathological perspective. Further research in this field is of interest as well as to analyse the possible concurrency of back pain with more specific pain conditions such as epicondylitis and other non-specific pain symptoms.

Conclusion

Patients visiting a PHCC with back pain do have more diagnoses and a higher degree of multimorbidity than patients without back pain. A novel finding, which requires further studies to confirm and understand, was the strong correlation between back pain and abdominal pain.

References

1. Starfield B (2006) Threads and yarns: Weaving the tapestry of comorbidity. Ann Fam Med 4: 101-103.
2. García-Olmos L, Salvador CH, Alberquilla Á, Lora D, Carmona M, et al. (2012) Comorbidity patterns in patients with chronic diseases in general practice. PLOS ONE 7: e32141.
3. Wändell P, Carlsson AC, Wettermark B, Lord G, Cars T, et al. (2013) Most common diseases diagnosed in primary care in Stockholm, Sweden, in 2011. Fam Pract 30: 506-513.
4. Jöud A, Petersson IF, Englund M (2012) Low back pain: Epidemiology of consultations. Arthritis Care Res (Hoboken) 64: 1084-1088.
5. Dong HJ, Wressle E, Marcusson J (2013) Multimorbidity patterns of and use of health services by Swedish 85-year-olds: An exploratory study. BMC Geriatr 13: pp. 120.
6. Prados-Torres A, Calderón-Larrañaga A, Hancco-Saavedra J, Poblador-Plou B, van den Akker M (2014) Multimorbidity patterns: A systematic review. J Clin Epidemiol 67: 254-266.
7. France EF, Wyke S, Gunn JM, Mair FS, McLean G, et al. (2012) Multimorbidity in primary care: A systematic review of prospective cohort studies. Br J Gen Pract 62: e297-e307.
8. Hartvigsen J, Natvig B, Ferreira M (2013) Is it all about a pain in the back? Best Pract Res Clin Rheumatol 27: 613-623.
9. Nordeman L, Gunnarsson R, Mannerkorpi K (2012) Prevalence and characteristics of widespread pain in female primary health care patients with chronic low back pain. Clin J Pain 28: 65-72.
10. Schäfer I, Kaduszkiewicz H, Wagner H-O, Schön G, Scherer M, et al. (2014) Reducing complexity: A visualisation of multimorbidity by combining disease clusters and triads. BMC Public Health 14: pp. 1285.
11. Scherer M, Hansen H, Gensichen J, Mergenthal K, Riedel-Heller S, et al. (2016) Association between multimorbidity patterns and chronic pain in elderly primary care patients: A cross-sectional observational study. BMC Fam Pract 17: pp. 68.
12. Lackner JM, Ma CX, Keefer L, Brenner DM, Gudleski GD, et al. (2013) Type, rather than number, of mental and physical comorbidities increases the severity of symptoms in patients with irritable bowel syndrome. Clin Gastroenterol Hepatol 11: 1147-1157.
13. Bertilson BC, Heidermark A, Stockhaus M (2014) Irritable bowel syndrome- A neurological spine problem. ResearchGate 4: 4154-4168.
14. Thomas E, Silman AJ, Croft PR, Papageorgiou AC, Jayson MI, et al. (1999) Predicting who develops chronic low back pain in primary care: A prospective study. BMJ 318: 1662-1667.
15. Hartvigsen J, Davidsen M, Hestbaek L, Sogaard K, Roos EM (2013) Patterns of musculoskeletal pain in the population: A latent class analysis using a nationally representative interviewer-based survey of 4817 Danes. Eur J Pain 17: 452-460.
16. Hagen EM, Svensen E, Eriksen HR, Ihlebaek CM, Ursin H (2006) Comorbid subjective health complaints in low back pain. Spine (Phila Pa 1976) 31: 1491-1495.
17. Hult L (1954) Cervical, dorsal and lumbar spinal syndromes; a field investigation of a non-selected material of 1200 workers in different occupations with special reference to disc degeneration and so-called muscular rheumatism. Acta Ortho Scand Suppl 17: 1-102.