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Original article

Investigations for radiculopathy: The patient perspective. A qualitative, interpretative inquiry

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ABSTRACT

Background: Clinical guidelines recommend that investigations, such as magnetic resonance imaging, are offered only when likely to change management. Meanwhile, the optimal process of diagnosing radiculopathy remains uncertain and, in clinical practice, differences of opinion can occur between patient and clinician regarding the perceived importance of investigations.
Objectives: To explore peoples' experiences of investigations and the effect of concordance between clinical presentation and investigation findings.
Methods: In this qualitative study, 14 participants who had recently undergone investigations for a clinical presentation of radiculopathy were purposively recruited from an NHS, Primary Care Service in the United Kingdom. Based on the principles of interpretative phenomenological analysis, individual, semi-structured interviews were recorded and transcribed verbatim. Data were managed using a framework approach and analysed thematically.
Findings: Although people reported wanting investigations to understand the cause of symptoms and inform management, access to them was reported to be difficult and protracted. When investigations revealed potentially relevant findings, people experienced relief, validation, empowerment and decisive decision-making. Disappointment emerged, however, regarding treatment options and waiting times, and long-term prognosis. When investigations failed to identify relevant findings, people were unable to make sense of their symptoms, relinquish their search to identify the cause, or to move forward in their management.
Conclusions: This study provides the first reported in-depth interpretation of peoples' experience of undergoing investigations specifically for radiculopathy. Important implications have been identified for: investigation referral criteria; shared-decision-making; information sharing and managing expectations and disappointment.
ClinicalTrials.gov reference: UOS-2307-CR.

1. Background

Radiculopathy is one of the most common variations of low back pain (LBP), with conservative estimates suggesting a lifetime prevalence of 12.2% (Konstantinou and Dunn, 2008). Characterised by leg pain, usually radiating below the knee, with variable neurological deficit, radiculopathy is caused by compromise of a lumbar-sacral nerve root(s). In about 90% of cases this results from a prolapsed intervertebral disc (PID), with other causes including spinal stenosis and, rarely, sinister pathology (Koes et al., 2007). At times, particularly in persistent radiculopathy, the cause may never be found (Hopayian and Notley, 2014). Radiculopathy differs to somatic referred pain, which is back-related leg pain caused by structures other than the nerve, such as the joint, ligament or muscle.

Although the prognosis of radiculopathy is favourable for many, the presence of leg pain, compared to LBP alone, adversely affects symptom severity, disability, absence from work and outcome (Konstantinou et al., 2013). For up to 30% of people, significant on-going symptoms continue beyond a year (Koes et al., 2007). With the annual cost of radiculopathy to the United Kingdom economy estimated to be £268 million in direct medical costs and £1.9 billion in indirect costs (van Tulder et al., 1995; Foster et al., 2017), radiculopathy is a considerable burden to both the individual and society.

Radiculopathy is usually diagnosed clinically and treated with physiotherapy or self-care for the first 6–8 weeks, with people who fail to improve likely to be referred to a spinal specialist to determine the most effective treatment (National Institute for Health and Care Excellence (NICE), 2016, National Health Service (NHS) England,

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2017). Unless a serious cause is suspected or symptoms are rapidly deteriorating, investigations (magnetic resonance imaging (MRI) or computed tomography (CT)) are recommended only for those people for whom it is likely to change management (by indicating eligibility for surgery or pain clinic intervention) (Royal College of Radiologists (RCR), 2012).

The optimal process of diagnosing radiculopathy is however, uncertain and complex. All tests have poor diagnostic accuracy, with pooled sensitivity of MRI (testing nerve root compression (NRC)) 0.25) (Tawa et al., 2016); specificity of crossed straight leg raise (for prolapsed intervertebral disc) 0.28 (Van Der Windt et al., 2010); and (in a primary study) the odds ratio of 6-item history (testing for NRC) 0.65 (Verwoerd et al., 2014). These findings show that it is difficult to be confident that MRI will accurately detect radiculopathy; that clinical examination will exclude other causes of symptoms; or that history taking will accurately determine whether radiculopathy is present or not. Thus, there is no ‘gold standard’ diagnostic test and synthesising evidence is difficult as the condition diagnosed may be radiculopathy, prolapsed intervertebral disc or nerve root compression. Questions also remain about the optimal timing of investigations; their ability to predict the likely need for intervention; and their effect on physical and mental health (Chou et al., 2009; El Barzouhi et al., 2016). Furthermore, in clinical practice, differences of opinion can occur between patient and clinician regarding the importance of investigations, with people perceiving clinical assessment alone to be insufficient to diagnose radiculopathy and determine treatment. To successfully negotiate how investigations are used in managing people with radiculopathy, it is imperative to hear the patients' voice. The importance of involving patients in the design and delivery of services is recognised by the Department of Health (DOH) and the National Institute of Health Research (NIHR) to be crucial in achieving safe, effective and acceptable healthcare (DOH, 2014; NIHR, 2016).

An extensive scoping literature review[2] identified only two studies (Rhodes et al., 1999; Espeland et al., 2001) exploring peoples' perceptions of undergoing investigations for LBP ± radiculopathy. These studies found that people ($n = 147$) perceived investigations to be important in establishing with certainty the cause of their symptoms. This was particularly important when symptoms were worsening or over three months in duration. In contrast, when investigations did not identify a structural cause, some people perceived that the legitimacy of their condition had been challenged. The relevance of these findings may be limited as data were collected almost two decades ago and relate partly to x-rays and myelograms, now rarely used in radiculopathy. Whilst the existing literature provides insight into the perceived importance and effect of investigations in people with LBP, their role and effect in the radiculopathy subgroup remains unknown. Therefore, this study addresses the question: ‘what is the lived experience of undergoing investigations for radiculopathy in the context of conservative management (with specific consideration of the effect of concordance between clinical presentation and investigation findings)?

2. Methods

This qualitative study was informed by the principles of interpretative phenomenological analysis (IPA), a methodology consistent with the aim of accessing and interpreting peoples' experiences (Smith et al., 2009). Ethical approval was gained from the South West Ethics committee in September 2015 (15/SW/0247).

2.1. Participants and recruitment

The sample consisted of people with a clinical presentation of radiculopathy, who had recently undergone investigations and received the results, whilst attending an outpatient physiotherapy service of a NHS primary care Trust, in the UK. The study aimed to recruit 12–15 participants. No claims were made to reach data saturation, as each person's experience of a phenomenon is unique. However, this number was considered enough to enable a rich, detailed analysis, informed by IPA principles, whilst providing sufficient information to answer the research question, and sufficient variation within the sample to enhance transferability (Guest et al., 2006; Baker and Edwards, 2012). Purposive sampling was used to gain representation across age, gender and whether or not investigation results concurred with clinical presentation.

Eligible people were approached by their clinician, a spinal specialist, when they attended the service to receive their investigation results. The spinal specialists (defined as physiotherapists with ≥10 years musculoskeletal experience, who undertook radiological and/or clinical training ≥ four times a year) used information from their clinical assessment to determine whether a person's presentation was consistent with radiculopathy, based on (Kongsted et al., 2012) criteria (Fig. 1) which reflect accepted diagnostic criteria in clinical practice.

People were included in the study if they were: adults aged ≥18 years; had recently undergone investigations for a clinical presentation of radiculopathy; and had received the results in the past six weeks. To increase the homogeneity of the sample, people were excluded if they had undergone spinal surgery, or if the suspected cause of symptoms was sinister pathology or cauda equina syndrome. People were also excluded if they were unable to communicate without the assistance of an interpreter or provide consent, or had previously been treated by the researcher.

People who were potentially interested in participating were provided with verbal and written information about the study. With their express, written consent, the researcher was given peoples' contact details and a statement indicating whether their radiological findings were concordant; potentially relevant; or non-concordant with their clinical presentation (Lurie et al., 2008), and an interview date was arranged.

2.2. Data collection

CR, a female spinal specialist and MRes student (with prior experience and training in conducting qualitative interviews), collected data between October 2015 and May 2016, using individual, face-to-face, semi-structured interviews. This was considered the best method to build rapport with individual participants and to explore emergent issues in depth. To minimise researcher bias, CR documented her biases and assumptions about using investigations for radiculopathy before starting data collection and took care to separate these from participants' perceptions throughout the research cycle. CR was introduced to participants as a researcher, as this was her role in the study. Interviews were completed in a quiet room within the hospital, away from the physiotherapy department. They were based on a topic guide (Fig. 2), to ensure core issues were explored with all participants, whilst providing flexibility to probe emergent issues. Open questions, encouraging breadth and depth, were informed by examples from related LBP/investigation/IPA studies (Smith and Osborn, 2007; Devcich et al., 2014) and minimal facilitation was used to prevent ‘leading’. The interviews were audio-recorded and transcribed verbatim. Field notes, recorded immediately following the interviews, were used to reflect on interview technique and emerging findings. Pseudonyms were used to maintain anonymity. In order to understand the environment in which investigations were undertaken, participants were initially asked about the effect that symptoms had on their life and their experiences of how radiculopathy was managed; these findings will be reported elsewhere.

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[2] Including CINAHL plus, AMED, MEDLINE, Psychinfo and Psycharticles (from inception - October 2016), grey literature and contact with prominent researchers of radiculopathy.