Physiotherapist-Led Triage at a Rheumatology-Based Musculoskeletal Assessment Clinic: an 18-Month Service Evaluation of Activity and Outcomes

Aoife Caffrey, Keith M. Smart and Oliver FitzGerald

Objective. Physiotherapist-led musculoskeletal triage clinics are an effective and efficient means of managing patients presenting with musculoskeletal disorders in primary and secondary care. Data regarding the activity and outcomes of physiotherapist-led triage in hospital-based outpatient rheumatology clinics are scarce. Thus, the aim of this study was to undertake a service evaluation of activity and outcomes of a physiotherapist-led rheumatology-based Musculoskeletal Assessment Clinic (MAC). The primary objective was to quantify the proportion of patients independently managed by the clinical specialist physiotherapists (CSPs).

Methods. A retrospective service evaluation was undertaken of all patients who attended the Rheumatology MAC at St Vincent’s University Hospital, Dublin (SVUH) between August 2012 and February 2014. The Clinical Audit Department of SVUH approved the study. Data were analyzed using descriptive statistics.

Results. Five hundred and eight patients attended the MAC: 76% were female and the mean age was 55 years and ranged between 18-91. Seventy-five percent of patients were independently managed by the CSP without needing to see a consultant rheumatologist, whereas 17% were referred to the rheumatology team. Eighty-seven percent of patients referred to the rheumatology team had rheumatological intervention (eg, injection, medical management, or multidisciplinary rehabilitation). A substantially higher proportion of patients with regional musculoskeletal pain and degenerative conditions were independently managed by the CSP compared with those who had rheumatological/inflammatory conditions.

Conclusion. The majority of patients who attended the MAC were independently managed by the physiotherapists, suggesting that physiotherapist-led triage may be a useful and efficient means of managing a proportion of patients referred for a specialist rheumatological consultation.

INTRODUCTION

Musculoskeletal disorders represent a major public health concern because they are one of the main causes of pain and disability worldwide (1).

Physiotherapist-led musculoskeletal triage refers to a model of practice in which patients with musculoskeletal disorders who are referred to hospital-based, consultant-led rheumatology and/or orthopedic clinics are instead assessed and managed by a clinical specialist physiotherapist (CSP). This model of care has been advocated in response to data suggesting that not all patients referred to consultant rheumatologists do so in a timely manner and that those with musculoskeletal disorders

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that do not require specialist input from a consultant rheumatologist or orthopedic surgeon are instead managed by musculoskeletal CSPs. This approach, it is argued, reduces patient waiting times for accessing consultant-led clinics and optimizes conversion rates to specialist rheumatological or orthopedic intervention (2,5).

A substantial number of trials, observational studies, and service evaluations of physiotherapist-led musculoskeletal triage services in primary and secondary care settings have found that suitably trained CSPs can independently and appropriately manage a significant proportion (50%-92%) of patients within physiotherapist-led musculoskeletal triage clinics (5–9). A systematic review of extended-scope physiotherapy practice in patients with musculoskeletal disorders suggests that the quality of care is at least equivalent to that of physician-led care with respect to diagnostic accuracy, clinical effectiveness, use of health care resources, and patient satisfaction (10). A retrospective review of 462 patients with nonurgent musculoskeletal presentations who were discharged from a musculoskeletal triage service reported that less than 5% of patients re-presented to the service within 12 months (6). Similarly, in a service evaluation of 184 patients discharged over a 2-month period from physiotherapist-led musculoskeletal triage clinics, only 6.5% of patients (n = 12) were re-referred to the service within 12 months (9).

It has been shown that there are positive economic impacts associated with physiotherapist-led clinics compared with consultant-led clinics. A retrospective review of 980 patients with shoulder, hip, and knee pain, managed at physiotherapist-led clinics at orthopedic departments in seven Queensland hospitals, reported that the physiotherapist-led service was a highly cost-effective addition to usual care and may be cost saving (11). In another Australian study in 2011, a cost per-patient of AU$52.59 was reported for a multidisciplinary assessment clinic run by a specialist orthopedic surgeon, specialist rheumatologist, and extended-scope physiotherapist. The authors reported that this cost could reduce to AU$29 for a physiotherapist-led clinic, representing almost a 45% saving in per-patient cost (12). Economic modeling has shown that increasing the capacity of a physiotherapist-led assessment clinic in an orthopedic service would be cost effective, improve patient throughput, and reduce patient waiting times without exceeding available surgical resources (13).

There are limited data regarding the activity and outcomes of physiotherapist-led musculoskeletal triage services in outpatient rheumatology settings. One retrospective service evaluation investigating the accuracy of a physiotherapist’s diagnosis of inflammatory joint disease at a rheumatology new patient clinic reported a diagnostic accuracy rate of 89% (14). In addition, the authors reported that 77% of new patients assessed at the rheumatology clinic presented with a noninflammatory musculoskeletal disorder, highlighting the high proportion of rheumatology referrals that could be managed by a CSP. Another retrospective service evaluation by the same authors reviewed the records of the 226 patients who were diagnosed by the CSP with a noninflammatory condition, and none of the patients were subsequently diagnosed with an inflammatory arthritis within a 3-year period (15). The authors concluded that a suitably trained physiotherapist does not miss inflammatory arthritis, can accurately distinguish inflammatory from noninflammatory musculoskeletal pain disorders, and may be useful for managing the large proportion of new patients presenting to rheumatology clinics with noninflammatory (ie, mechanical and degenerative) musculoskeletal disorders.

In 2010, the Irish Health Service Executive set up a National Clinical Programme in orthopedics and rheumatology to address the large waiting lists for outpatient clinics. Twenty-two musculoskeletal CSP posts were appointed nationally to set up and run musculoskeletal triage clinics in secondary care hospitals regionally. Physiotherapist-led triage in an outpatient rheumatology clinic setting began at St. Vincent’s University Hospital (SVUH) in January 2012 and is known as the Musculoskeletal Assessment Clinic (MAC). The MAC is staffed by two CSPs, each with over 20 years of clinical experience, postgraduate MSc qualifications, and one with a PhD qualification. The MAC is co-located with the consultant rheumatologists’ outpatient clinics, and the rheumatology consultants are available to see patients at the MAC if required.

The consultant rheumatologists’ paper-triage all new referrals by general practitioners (GPs) to the rheumatology service and redirect referrals for patients with noninflammatory conditions and regional musculoskeletal pain to the MAC. The CSPs assess these patients at the MAC, provide a diagnosis, and determine the most appropriate care pathway for each patient. Management pathways include referral to i) physiotherapy, ii) the rheumatology team, iii) another medical or surgical team, and iv) discharge to GP.

The primary aim of this study was to quantify the proportion of rheumatology patients independently managed by CSPs in a physiotherapist-led MAC. A secondary aim was to identify trends in the diagnosis of patients who were independently managed by the CSP.

**PATIENTS AND METHODS**

A retrospective service evaluation of the MAC was undertaken to include all new patients seen in the MAC over an 18-month period between August 2012 and February 2014. Approval for the service evaluation was obtained from the Clinical Audit Department of SVUH.

Demographic (gender, age, employment status) and clinical (diagnosis, MAC outcome) data were collected for all patients from the clinic database and medical records. Data were also collected on whether the patient was seen by the rheumatology consultant during their clinic visit. Patients were defined as “independently managed by the CSP” if they were seen only by the CSP and were not reviewed by the consultant rheumatologist during their visit to the MAC or referred on to the rheumatology team. Data were analyzed using descriptive statistics (SPSS version 20, IBM SPSS Statistics for Windows).
Results of the 508 patients seen at the MAC, 88% (n = 445) were seen by the CSP only, and 12% (n = 63) were seen by both the CSP and the rheumatology consultant at the MAC. Analysis on management pathways is shown in Figure 1. Sixty-nine percent (n = 353) of patients were seen by the CSP only and discharged to GP. A further 30 patients (6%) were seen by the CSP only and referred to other medical teams. This represents a total of 75% (n = 383) of patients independently managed by the CSP at the MAC. Twelve percent of patients (n = 62) were seen by the CSP only and referred on to the rheumatology team. A further 5% of patients (n = 25) were seen by the CSP and rheumatology consultant at the MAC, and referred on to the rheumatology team for further management. There were 183 referrals to physiotherapy (36% of 508 total), with the majority of these referrals (n = 146) occurring in the group seen independently by the CSP and discharged to their GP.

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Rheumatology consultant involvement. There was rheumatology consultant involvement in 25% (n = 125) of MAC patients, which includes those seen by the rheumatology consultant during their visit at the MAC (n = 63) and patients who were seen by the CSP only and then referred to the rheumatology team for further assessment or management (n = 62). Analysis of the 87 patients referred to the rheumatology team identified that 75 of those patients underwent intervention by the rheumatology team, including 37 patients referred for multidisciplinary assessment/rehabilitation at a specialist rheumatic and musculoskeletal disease unit, 25 patients prescribed medication, and 14 patients undergoing injection. This represents an intervention conversion rate of 87% of the patients taken over by the rheumatology team and 15% of the total number of MAC patients. Four other patients who were referred to the rheumatology team were discharged, and one patient was lost to follow-up.

The proportion of patients independently managed by the CSP is displayed, according to their diagnosis, in Table 2. Eighty-four percent of patients who presented with osteoarthritis, spinal,

Table 1. Demographics, employment status, diagnosis, and symptom duration of Musculoskeletal Assessment Clinic patients

| New Patients | n (%) |
|--------------|-------|
| Gender       |       |
| Male         | 22 (24) |
| Female       | 386 (76) |
| Age          |       |
| Mean (SD)    | 55 (15.62) |
| Employment status |       |
| Employed     | 182 (36) |
| Unemployed   | 37 (7) |
| Retired      | 139 (28) |
| Homemaker    | 116 (23) |
| Student      | 17 (3) |
| Long term disability | 17 (3) |
| Diagnosis    |       |
| Osteoarthritis | 159 (31) |
| Upper limb presentations | 104 (21) |
| Lower limb presentations | 66 (13) |
| Spinal presentations | 85 (17) |
| CWP/FMS presentations | 62 (12) |
| Rheumatological conditions | 21 (4) |
| Other         | 11 (2) |
| Symptom duration |       |
| <3/12        | 24 (5) |
| 3/12-1 year  | 203 (40) |
| >1 year      | 281 (55) |

Abbreviation: CWP, chronic widespread pain; FMS, fibromyalgia syndrome.

Results

A total of 508 new patients attended the rheumatology MAC during an 18-month period between August 2012 and February 2014. New-patient demographics, employment status, diagnostic categories, and symptom duration are displayed in Table 1. Seventy-six percent of patients were female, and the mean age of patients attending the clinic was 55 years (range: 18-91). A total of 53 different diagnoses was made. Ninety-four percent of MAC patients (n = 476) had a noninflammatory presentation. The most common specific diagnosis made was general osteoarthritis (16%, n = 81), followed by shoulder subacromial pain (10%, n = 49), and low back pain (9%, n = 47). Ninety-five percent of MAC patients reported symptom duration of greater than 3 months, with symptoms lasting longer than 1 year in 55% of patients.

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The proportion of patients independently managed by the CSP is displayed, according to their diagnosis, in Table 2. Eighty-four percent of patients who presented with osteoarthritis, spinal,
and upper and lower limb musculoskeletal conditions (n = 346) were managed independently by the physiotherapists without seeing the rheumatology team, compared with 48% (n = 30) of patients with chronic widespread pain or fibromyalgia and 10% (n = 2) of patients with inflammatory, autoimmune, or rheumatological conditions.

**DISCUSSION**

This service evaluation reports the activity and outcomes of patients attending a physiotherapist-led triage clinic within a rheumatology service of an Irish secondary care university teaching hospital.

The findings of this service evaluation show that the majority of patients (75%) directed to the MAC were independently managed by the CSPs without review by the rheumatology consultant or team. This is comparable to the findings of similar orthopedic service evaluations (5–8), which have reported that 50%-92% of patients seen in physiotherapist-led triage services were managed without referral to orthopedic clinics.

In an audit of Irish national data on the management of patients at physiotherapist-led musculoskeletal triage clinics in 2014 (9), there was consultant involvement in the clinical decisions of 28.4% of rheumatology patients, and the remaining 71.6% of patients were independently managed by the advanced practice physiotherapist, which is similar to the proportion independently managed by the CSP in this service evaluation. The high proportion of patients independently managed by the CSP and subsequently discharged back to their GP (74%, n = 375) highlights the appropriateness of the referrals directed to this service.

**Rheumatology team involvement.** In this service evaluation, 17% (n = 87) of patients were referred on to the rheumatology team. In an audit of Irish national data of musculoskeletal triage services (9), only 12.9% of rheumatology patients were referred on to consultant services. The higher proportion directed to a rheumatology team in this service evaluation is likely explained by our service’s access to a specialist rheumatic and musculo-
skeletal disease unit for multidisciplinary assessment and rehabilitation, which accounted for 47% (n = 37) of referrals to the rheumatology team.

**Conversion to intervention.** There was a low conversion rate to specialist rheumatological intervention of the total number of patients directed to the MAC (15% of 508), which further supports the appropriateness of referrals directed to the MAC for assessment and management. This low conversion rate to intervention is in keeping with the findings of the service evaluation of physiotherapist-led triage within the orthopedic service at SVUH (5), which reported orthopedic intervention for 14% of the total number of patients seen by the CSP.

**Clinical presentations.** The most common clinical presentations of the patients at the MAC were of osteoarthritis, followed by upper limb soft-tissue conditions, which predominantly consisted of shoulder subacromial pain and was closely followed by low back pain. This is somewhat different from the findings of an evaluation of physiotherapist-led triage within the orthopedic service at this hospital, in which spinal conditions followed by osteoarthritic knee were the most common presentations seen (5). We speculate that the high proportion of shoulder and upper limb presentations to the rheumatology service might reflect the level of access to musculoskeletal services in primary care, which is varied across different geographical regions within the Irish health care system. One study of Irish GP access to physiotherapy services reported that only 58% of GPs in urban areas had access to physiotherapy services (16). Earlier referral to physiotherapy by the GP within primary care might have avoided referral to the rheumatology service within secondary care. Standardizing access to diagnostics, injection therapy, and multidisciplinary rehabilitation within primary care services would facilitate management of routine noninflammatory musculoskeletal conditions within primary care and would free up secondary care services to manage more complex clinical presentations.

There was a clear trend in the diagnoses of patients who were independently managed by the CSP. The majority of patients with noninflammatory degenerative presentations, spine, and upper and lower limb soft-tissue presentations (84%, n = 346) were independently managed by the CSP, indicating that this type of referral is most appropriate for physiotherapist-led musculoskeletal triage, which was in contrast to the substantially lower proportion of patients with chronic widespread pain or inflammatory presentations who were independently managed by the CSP.

**Inflammatory presentations.** Rheumatology services typically prioritize patients referred with inflammatory presentations for urgent access to their services because early diagnosis and medical management of inflammatory conditions is essential to improve long-term outcomes (17). Patients referred with noninflammatory presentations are often placed on "routine" waiting lists, and these patients will often wait longer to access assessment and management (18). By directing referrals with noninflammatory conditions to the MAC, capacity was created at the rheumatology consultant-led service for patients with inflammatory conditions.

A small number of patients were directed to the MAC with rheumatological inflammatory or autoimmune conditions (n = 21). Although the objective of the paper-triage by the rheumatology consultants is to direct these types of referrals to consultant-led rheumatology clinics, there was insufficient information on these referrals by the GP to identify a possible inflammatory or autoimmune condition. Although not specifically considered in this service evaluation, there were a proportion of patients who had a new diagnosis of an inflammatory condition diagnosed by the CSP within this cohort (eg, spondyloarthropathy, inflammatory osteoarthritis). The majority of patients with rheumatological conditions (90%, n = 19) were seen by the rheumatology team. There were two patients with rheumatological conditions who were not referred to the rheumatology team, one patient with polymyalgia rheumatica, and another patient with gout, and both patients had symptom resolution that was due to medical management by GP prior to attending the MAC.

There were 62 referrals with chronic widespread symptoms/features of fibromyalgia directed to the MAC service. These types of referrals are often prioritized as "routine" regarding their access to rheumatology services (18). Interestingly, over half of patients who presented with fibromyalgia or chronic widespread pain in this service evaluation (52%, n = 32) were seen by the rheumatology consultant or referred to the rheumatology team. This reflects the more complex presentations associated with these conditions. Given the numerous autoimmune and connective tissue diseases that can present with many of the clinical features of fibromyalgia, more than half of these patients required assessment by the rheumatology consultant to clarify their diagnosis. Many of these patients have complex clinical presentations, and both they and their GPs are seeking assessment by a rheumatology consultant. A recent editorial has highlighted the diagnostic gold standard for fibromyalgia as the expert opinion of the rheumatologist (19). Whether these patients are best seen in a consultant-led clinic to rule out a systemic inflammatory or autoimmune condition is a subject requiring further research.

A limitation of this service evaluation is the lack of clinical outcomes regarding pain and disability of the patients who attended the service. It would be worthwhile to report on this in future service evaluations.

This service evaluation shows that the majority of patients referred to a rheumatology service with degenerative and regional musculoskeletal pain can be managed independently by a clinical specialist physiotherapist.
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AUTHOR CONTRIBUTIONS

All authors critically revised the manuscript for important intellectual content and approved the final version of the article to be published.

Study conception and design. Caffrey, Smart, and FitzGerald.

Acquisition of data. Caffrey.

Analysis and interpretation of data. Caffrey.

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