

Popular physical therapy modalities in the management of whiplash-associated disorders

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Abstract

Objectives. The aim of this study was to determine current physiotherapy practice in private clinics across the UK in the management of whiplash-associated disorder (WAD) injuries.

Design. All treatment reports provided to a private health care company between January 2008 and July 2010 ($N=365$) were included and analysed to determine the following: the treatments favoured in the management of whiplash; the number of sessions used on average; and the main reasons for discharge.

Results. Joint mobilisations, stretches and mobility exercises were favoured in the management of acute whiplash treatment and were used in 74%, 68% and 61% of cases, respectively. The most popular treatments in chronic whiplash, in order of preference, were: stretches (73%), joint mobilisations (69%) and soft-tissue massage (63%). On average, physiotherapists used 4.46 sessions and 7.21 modalities per patient. Although the outcome measures were limited to reason for discharge, the majority of patients were discharged because of 'treatment complete/self management sufficient', which may be assumed to be a favourable recovery for 79% of patients.

Conclusion. This study found that physical therapists across the UK generally use evidence-based modalities in the treatment of whiplash. However, there remains a need to emphasise and embrace a more educational and active approach to the management of these injuries. The study recommends a protocol for treating WAD that includes supplementing therapeutic modalities with an exercise component, and routinely providing information and advice to 'act as usual'.

Introduction

Whiplash as a mechanism of injury represents forced flexion-extension trauma to the neck.¹ As a diagnosis, whiplash-associated dis-

order (WAD) is a complex clinical manifestation of neck pain, headaches, nonspecific neurological complaints, cognitive symptoms and emotional complaints.²⁻⁵ WAD is a common and costly disorder that places a social and an economic burden on health care systems, communities and the insurance industry.^{6,7} In 1995 the Quebec Task Force published an evidence-based report on the classification and treatment of WAD. The classification of WAD complaints was graded on a scale of 0 - IV, depending on severity and extent of injury.⁸⁻¹⁵ Halderman *et al.* went one step further and included a detailed management plan according to the grading of the injury.¹⁶

The grading was developed to guide and facilitate clinicians in their choice of treatment and management. However, there is still no guideline in the literature that unequivocally supports any single treatment in the care of WAD.⁵ It is generally accepted that active treatment is favoured over passive modalities.¹⁷ Furthermore, excessive passive health care utilisation for a WAD injury may result in a slower recovery.¹⁸ There is consensus in the literature that passive coping strategies are associated with a poorer prognosis compared with strategies where patients play an active and self-reliant role in their recovery.¹⁹ An active therapy such as exercise prescription has been shown to be superior to a solely passive intervention.²⁰ In addition, many hands-on treatments such as manipulations, mobilisations, transcutaneous electrical nerve stimulation (TENS), and interferential therapy (IFT) have been found to be more effective when used in combination with an exercise component.^{6,16,21,22} Moore *et al.* suggested that the goal of treatment should be to improve function, empower the WAD sufferer, return the patient to normal activity and, lastly, relieve symptoms.⁶ The management focus for WAD, especially when chronic, should be to resume or maintain a normal lifestyle, with decreasing attention on pain and symptoms.^{19,23} Another compounding factor in the choice of management is the patient's preference for health care and choice of care, which is influenced by personal and environmental experiences.²² The jury is still out on the effect that patient preferences have on clinical outcomes,²⁴ but it does need to be taken into consideration.²⁵

There is good evidence to support the recommendation of an early return to usual activity^{6,21,26,27} or to 'act as usual'.²⁰ Providing information, advice and education are also strongly suggested in the literature.^{18,19,28} Therapy that includes an exercise component is generally perceived as being superior to therapies that do not include exercise.^{6,10,17,19-21} Gross *et al.* noted strong evidence for pain reduction, improved function and positive, global perceived effect for therapy that combined exercise with manipulation/mobilisation.^{29,30}

In a review of randomised controlled trials (RCTs) of non-invasive interventions for WAD, Conlin *et al.* found consistent evidence for the support of mobilisation for acute WAD. In the same study, moderate evidence was found for the effectiveness of a multimodal

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intervention inclusive of an exercise component.^{30,31} The efficacy of spinal manipulations versus other treatments in the management of WAD is still being debated in the literature.³²

This begs the question (with very little guidance provided to clinicians on the management of WAD): What treatment is generally preferred by physiotherapists? Surveys have been conducted to assess clinical practice for WAD and other musculoskeletal (MS) injuries in emergency departments,^{33,34} but minimal information exists on preferred modalities used by physiotherapists in private practice in the UK. Are clinicians making use of evidence-based medicine and guidelines in the literature, and do these modalities bring about the expected outcome? The aim of this study was to assess, over a period of 2.5 years, which treatment is most frequently used by physiotherapists in the treatment of WAD in private practices across the UK.

Methods

Setting

An observational, retrospective cross-sectional study was completed. We conducted this study through a UK-based private rehabilitation company that provides treatment on behalf of various industrial sector employers. All physiotherapists are routinely expected to provide treatment reports for the patients referred to them. It must be noted that all reports were filled in at the discretion of the practitioner, and no formal training was provided. The reports that were sent to the company from January 2008 to July 2010 were gathered and assessed.

Patients

Inclusion criteria consisted of all cases with the term 'whiplash' in the diagnosis, which coincided with the neck as the primary injury region. Only 10% were graded according to the Quebec Task Force Classification for WAD or similar, and therefore inclusion criteria extended to include WAD Grade 0 - III and all those with no specific grading. Exclusion criteria included secondary injuries of the upper or lower limbs, and severe pathological findings or WAD Grade IV. Patients still being treated were excluded.

Data analysis

Simple descriptive statistics were used to describe the overview of treatment intervention choices based on the data collected. A total of 365 WAD cases were found in the search. For each case, physiotherapists were made to select, from a variety of choices, the modality used during treatment. They were able to select as many modalities as necessary. These data were then measured to assess which modalities were preferred or most frequently used in the treatment of WAD.

The information was divided into three main categories for analysis. Firstly, all WAD cases were examined ($N=365$). These cases were then further divided into acute WAD only ($N=205$) and chronic WAD only ($N=160$) to examine whether treatment differed according to the classification of the injury. Literature reports vary concerning the terms 'acute', 'sub-acute' and 'chronic'.²⁷ Vernon *et al.*²⁷ and Schellingerhout *et al.*³⁵ define acute as clinical symptoms lasting no longer than 4 weeks.³⁶⁻³⁸ This definition was used for the purpose of the study. Chronic was classified as symptom persistence for any condition of more than 4 weeks' duration. For each category the following areas were assessed: (i) the type and preference of treatment used; (ii) the average number of treatment modalities used; (iii) the average number of treatment sessions attended; and (iv) the reasons for discharge for each intervention.

Results

Routine intervention for whiplash-associated disorders

Results are shown for all whiplash cases (Fig. 1) as a percentage for usage in each intervention category. The most popular treatment choices were joint mobilisations and stretches, all used in over 70% of WAD patients. Mobility and massage were also preferred interventions, used in 60% or more of all patients. Provision of information on the injury, postural rehabilitation and strengthening were also common, all used in over 40% of patients.

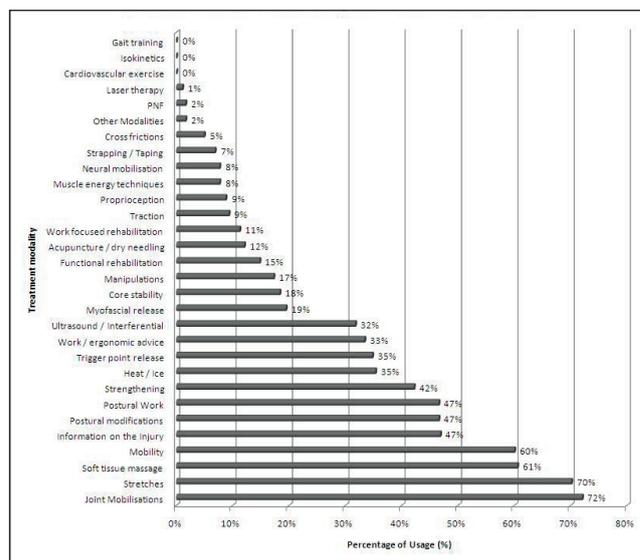


Fig. 1. Preferred interventions for chronic and acute WAD patients (N=365). The most frequently used interventions were joint mobilisations, stretches and soft-tissue massage.

For the management of acute WAD (Table 1), physiotherapists used joint mobilisations in over 70% of all patients. They opted for a more active, exercise-therapy approach, with mobility and stretches being used in more than 60% of all acute cases. Soft-tissue massage was used marginally less in the acute phase, but was nevertheless favoured in 59% of patients. Strengthening, information on the injury, and postural therapy were also all used in over 40% of patients.

In comparison, the most popular choice of treatment in the management of chronic WAD was stretches, used in 74% of all patients (Fig. 2). Soft-tissue massage and joint mobilisations continued to be used in over 60% of all patients, with mobility used less frequently than in the acute phase. Most physiotherapists continued to use strengthening, information on the injury, and postural therapy as favoured treatment options (44%, 45% and 44% of cases, respectively).

Treatment sessions

The overall average number of treatment sessions used was 4.46 per patient, which was marginally higher for acute WAD versus chronic WAD treatment (4.5 and 4.4, respectively). The average number of modalities used per patient was 7.21, which remained unchanged for acute and chronic WAD (Fig. 3).

Reasons for closure

The only outcome measure available from these data was reason for discharge, and physiotherapists were prompted to select the most appropriate reason from a stipulated list. For the majority of patients, for both acute and chronic WAD, the outcome was favourable and no further treatment was required because of a good recovery (81% and

TABLE I. A comparison of the choice of treatment reported by physiotherapists

Treatment modality	Chronic WAD (%) (N=160)	Acute WAD (%) (N=205)
Stretches	73	68
Joint mobilisations	69	74
Soft-tissue massage	63	59
Mobility	59	61
Information on the injury	45	48
Postural modifications	44	49
Postural work	44	49
Strengthening	44	41
Trigger point release	38	33
Heat/ice	36	35
Work/ergonomic advice	34	33
Ultrasound/interferential	29	34
Myofascial release	23	17
Manipulations	18	17
Core stability	16	17
Acupuncture/dry needling	14	11
Functional rehabilitation	13	16
Work-focused rehabilitation	12	11
Traction	11	8
Proprioception	9	8
Neural mobilisation	9	7
Muscle energy techniques	6	9
Strapping/taping	6	8
Cross frictions	4	5
Laser therapy	2	0
Other modalities	1	2
PNF	1	2
Cardiovascular exercise	0	0
Isokinetics	0	0
Gait training	0	0

76%, respectively). Non-arrival for treatment appeared to be more common in chronic (7%) than in acute (2%) cases, as well as for patients not continuing with treatment (8% and 3%, respectively). Other reasons are shown in Fig. 4 and comprised the minority (<5%) of cases.

Discussion

The results suggest that there is a strong preference for the use of joint mobilisations, stretches, mobility exercises and soft-tissue massage in the treatment of both acute and chronic whiplash. There was much concordance with the use of postural therapy and strengthening as readily adopted treatment modalities in the management of WAD. Very little variance was shown between choice of treatment for acute and chronic whiplash. Clinicians reportedly treat most patients in accordance with Conlin *et al.*'s treatment,³¹ specifically in their support of the use of mobilisation in the acute phase of a WAD injury. There is a lack of high-quality evidence to support clinical decisions for one type of treatment above another for WAD. The literature does, however, strongly suggest the use of manipulation, mobilisation and exercise in the management of low-grade whiplash injuries.

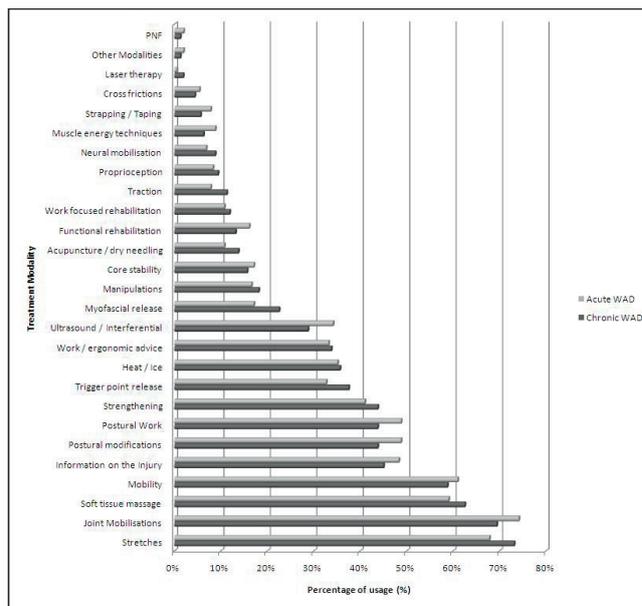


Fig. 2. A comparison of treatment usage in chronic (N=160) versus acute (N=205) WAD. Joint mobilisations and stretches were popular treatments, the latter being used more favourably in the treatment of chronic WAD.

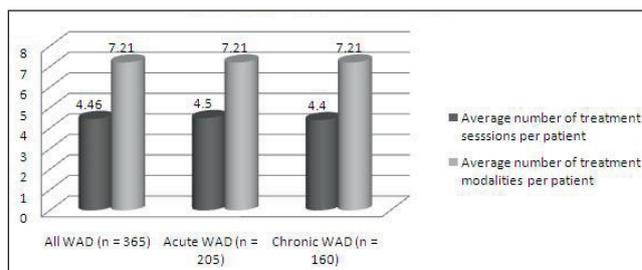


Fig. 3. A summary of the treatment, depicting number of sessions (grey bar) and number of modalities (black bar) used per patient.

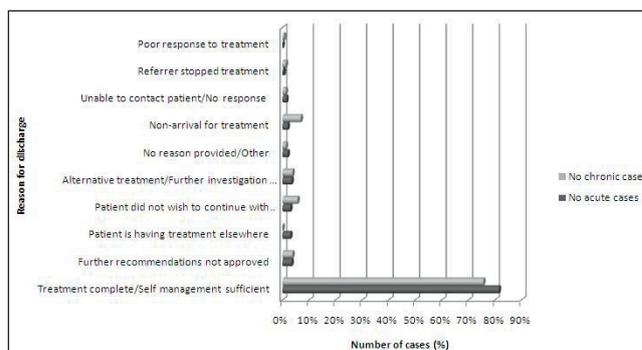


Fig. 4. Summary of response to treatment, showing the discharge reasons for acute WAD (black bars) and chronic WAD (grey bars). The majority of patients were discharged because of 'treatment complete/self management sufficient'.

There is also strong evidence for providing education on injuries, and advice to stay active^{6,21} or 'act as usual'.²⁶ Although these have been associated with a positive effect on clinical outcomes,¹⁸ data from this study show that these suggestions are used in fewer than half of patients. Unfortunately, the type and content of the information provided during treatment are not detailed in this study. Furthermore, one can ascertain whether clinicians are providing advice to 'act as

usual' or 'return to usual activities'. Encouragement and reassurance should also play an important role in treatment. Future studies should assess the specifics of the information provided, and the effect that these contribute towards recovery.

Current evidence suggests the use of manual therapies in conjunction with an exercise component.^{21,22} It is, however, worthwhile to note that a strengthening component was used in fewer than half of all patients treated in this study. Passive treatments, such as soft-tissue massage, still tended to be popular despite warnings of clinical dependence and ineffectiveness for WAD sufferers.²⁶

Despite numerous systems in place for the grading and classification of WAD,¹⁶ the current study found the practitioners' diagnoses to be lacking in this regard. Only 10% of cases ($N=38$) were found to be correctly classified specific to the Quebec or other classifications in the literature. A more thorough classification system will help to facilitate clinical judgement and reasoning behind a choice of treatment and an expected outcome.

Conclusion

The use of joint mobilisations, stretches and soft-tissue massage in the treatment of WAD is common and widespread among physiotherapists. The traditional use of passive therapies is no longer considered best practice. The temporary relief and encouraged dependence provided by these therapies may prolong recovery. The societal, financial and clinical implications of this will only increase the burden on society. Therefore, we recommend a management protocol for WAD that includes providing education and advice, and using therapeutic modalities in combination with an exercise component. There remains a need in clinical practice to embrace an emphasis on active and educational care as routine practice.

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