Research paper

Clinical practice guidelines for the use of traditional Korean medicine in the treatment of patients with traffic-related injuries: An evidence-based approach

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ABSTRACT

Introduction: In 2016, traditional Korean medicine (TKM) treatment for traffic-related injuries comprised 27.7% of Korea's total car insurance medical coverage, and that proportion has been increasing annually. However, clinical practice guidelines (CPGs) that employ evidenced-based medicine (EBM) methodology for traffic-related injuries have not been established in TKM. Therefore, the aim of this study was to develop a CPG for the treatment of traffic-related injuries in TKM by conducting a systematic literature review following EBM.
Methods: First, a network of experts was established to develop the CPG. Then, a systematic search of TKM treatments for traffic-related injuries was conducted using the Patients/Populations–Intervention–Comparison–Outcome method. To measure the methodological quality of the systematic reviews and meta-analyses, the assessment of multiple systematic reviews was used. The Cochrane collaboration's risk of bias tool was used to assess the randomised controlled trials.
Results: The CPG for the treatment of traffic-related injuries in TKM consisted of three parts: diagnosis, treatment, and prognosis. In total, 13 recommendations were developed, with two regarding diagnosis, 10 regarding treatment, and one regarding prognosis.
Conclusions: This CPG was developed by conducting a systematic literature review of randomised controlled trials. Therefore, this CPG can be adapted to different clinical status for traffic-related injuries. Specifically, it can be useful reference for traditional Chinese medicine and Kampo medicine practitioners using the same or similar interventions. In addition, the CPG can serve as an EBM model for countries unfamiliar with the complementary and alternative medicine treatment of traffic-related injuries.

1. Introduction

According to the 2015 World Health Organization (WHO) global status report on road safety, 1.25 million people die every year from traffic accidents worldwide. In 2014, a steady increase in the number of traffic accidents in Korea was observed. Specifically, a remarkable 223,552 cases were reported. In 2016, traditional Korean medicine (TKM) treatment for traffic-related injury comprised 27.7% of Korea's total car insurance medical coverage, and that proportion has been increasing annually [1]. In 2016, the Korean Ministry of Health & Welfare reported that approximately 720,000 patients visit TKM clinics for traffic-related injuries, which was a 50.7% increase from the

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480,000 patients who visited TKM clinics in 2014. Moreover, medical expenses associated with traffic-related injuries were reported to be approximately 459 billion won in 2016, which was a 68.9% increase from the estimated 272 billion won in 2014 [2].

Patients with traffic-related injuries often present with systemic symptoms, such as sprains, fractures, nerve damage, traumatic brain injuries, and severe organ damage to organ. A common ailment of traffic-related injuries is whiplash-associated disorder (WAD) caused by hyperextension or hyperflexion of the neck as a result of rapid acceleration or deceleration. However, patients with traffic-related injuries present with varying complexities of symptoms depending on the nature of the accident [3–5]. Since 1999, the Car Insurance Medical Coverage for traffic accident patients has also paid for traditional Korean medicine services alongside conventional medicine. The range of coverage in this program include Chuna manual therapy, pharmacopuncture, digital infrared imaging, transcutaneous electrical nerve stimulator, interference current therapy, and meridian laser therapy in addition to the treatments covered by National Health Insurance. Traditional Korean medicine services for traffic accident patients complements Conventional Medicine treatments by relieving pain and promoting recovery of function, which explains the increasing use of TKM [6]. However, there are no useful clinical practice guidelines (CPG) for the use of TKM in the treatments of traffic-related injuries. Therefore, a comprehensive and standardised CPG for TKM that addresses the diagnosis, treatment, and prognosis of traffic-related injuries is needed. In 2016, the Korean government ordered the development of CPG for TKM in the treatment of traffic-related injuries and 30 other diseases to expand the contribution of TKM to the national public health care system [7].

Western countries have many CPG, such as the Quick Reference Guide for the Management of Acute Whiplash-Associated Disorder (Sydney, 2015) [8], the Minor Injury Guideline (Canada, 2011) [9], and the Clinical Guidelines for the Physiotherapy Management of Whiplash-Associated Disorder (London, 2005) [10]. However, CPGs that employ evidenced-based medicine (EBM) methodology for traffic-related injuries have not been established in TKM despite the increasing demand for TKM services.

The CPG presented here is based on a strict systematic literature review of EBM methodology and developed in accordance with the CPG development manual provided by the National Evidence-based Healthcare Collaborating Agency (NECA) in Korea [11]. This CPG for the use of TKM in the treatment of traffic-related injuries provides appropriate recommendations that address key clinical questions. This CPG can aid in the clinical decision-making process, improve the overall quality of TKM practice, and serve as a model for countries that are unfamiliar with the use of traditional medicine in the treatment of traffic-related injuries. In addition, this CPG can be useful reference for traditional Chinese medicine (TCM) and Kampo medicine practitioners using the same or similar interventions such as acupuncture, moxibustion, and cupping.

2. Methods

In accordance with the NECA CPG developmental manual, a professional group, a review committee group, and a working group were established through the cooperation of six related academic societies. The CPG was developed for adult patients with traffic-related injuries and consisted of three parts: diagnosis, treatment, and prognosis. Furthermore, this CPG includes clinically effective therapies derived from real clinical practice conditions. The target group of CPG is TKM doctors who are involved in the treatment of traffic-related injuries. Additionally, TCM and Kampo medicine practitioners who use same or similar interventions could also be a target group of this CPG.

2.1. Establishing the network of experts to develop the CPG

Three groups were placed in charge of this CPG: a professional group, a working group, and a review committee group (Appendix Eq. (I.1) in Supplementary material). The professional group oversaw the general review of specialty and academic research for the use of TKM in the treatment of traffic-related injuries. The working group collected data about key clinical questions and used this data to draft a version of the CPG. The review committee reviewed, revised, and supplemented the final CPG.

2.2. CPG development process

The CPG was developed in accordance with NECA guidelines. First, 13 key clinical questions were identified through the analysis of domestic and international CPGs. There were two clinical questions of diagnosis, ten clinical questions of treatment, and one clinical question or prognosis (Appendix Eq. (C.1) in Supplementary material). Second, meaningful clinical data were extracted from the literature and used to make recommendations. All systematic review processes followed the preferred reporting items for systematic reviews and meta-analyses (PRISMA) recommendation of summarizing the evidence of each clinical question. During this process, objective and validated methodological tools, such as Review Manager 5.3, Cochrane collaboration's tool for assessing risk of bias (ROB) for randomised controlled trials, and assessment of multiple systematic reviews (AMSTAR), were used to evaluate the systematic reviews. The RAND-UCLA Appropriateness Method, which is a modified Delphi method, was applied to validate the final recommendation [12]. The Korean Academy of Oriental Rehabilitation Medicine, Korean Society of Chuna Manual Medicine for Spine and Nerves, Korean Society of Oriental Neuropsychiatry, and the Korea Immuno-Pharmacoacupuncture Association reviewed and approved this CPG for traffic-related injuries. The Korea Acupuncture and Moxibustion Medicine Society did not review and approve this CPG. The overall process is summarised in Fig. 1.

2.3. Search strategy

A search was conducted in the order of diagnosis, treatment, and prognosis. The core, standard, ideal model proposed by the National Library of Medicine was used to select the databases to be included in the literature search [13]. Pubmed, Ovid-MedLine, EMBASE, and Cochrane CENTRAL were used as the foreign core databases. KoreaMed, Kmbase, KISS, and NDSL were used as the domestic core databases. A standard database is characterised by themes different from those of a core database. CNKI was used as a foreign standard database and OASIS and RISS were used as domestic standard databases. The ideal database includes abstracts of academic conferences, unpublished literature, and current clinical trials. In this study, the clinical manual textbook was considered to be an ideal database.

2.4. Literature search

A committee that met once a month selected the databases to be included in the study based on the inclusiveness and accessibility of the literature searches. The study design of this CPG was a randomised controlled trial. A systematic search of TKM treatments for traffic-related injuries was conducted using the Patients/Populations–Intervention–Comparison–Outcome method, with a focus on the Patients/Populations and Intervention components to ensure a comprehensive search. In the domestic databases, complex searches could not be correctly performed, so the databases were mined with a comprehensive keyword based on Patients/Populations component.

Patients/Populations and Interventions are explained in Table 1.

Comparisons: Controls were included if they were real and valid clinical cases in South Korea. The following groups were compared: