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Letter to the Editor

Integrative rehabilitation program for the management of patients after arthroscopic shoulder surgery: a retrospective case series study

With the evolution of advanced arthroscopic techniques, the rates of arthroscopic rotator cuff repair (RCR) increased 600% between 1996 and 2006.[1] Nevertheless, complete healing and normal restoration is difficult. Therefore, comprehensive and multidisciplinary rehabilitation following shoulder surgery has been emphasized for successful management and prevention of postoperative pain and stiffness.[2,3] However, there is no consensus on the optimal rehabilitation protocol following shoulder surgery.[4–6]

Integrative rehabilitation program including physical therapy and Korean medicine (KM) such as acupuncture, herbal medicine (HM), pharmacopuncture, and cupping therapy is frequently used for postoperative rehabilitation in KM clinical settings.[7] However, there is no report on integrative rehabilitation treatments after RCR, which reflect the real-world practice. We aimed to summarize the results of integrative rehabilitation program used in a local KM hospital following arthroscopic shoulder surgery and to provide basic evidence supporting its use for developing optimal rehabilitation strategies.

The medical records of all the patients who were hospitalized for the integrative rehabilitation program at Cheom-Dan Korean Medicine Hospital (Gwangju, Korea) from October 2017 to November 2018 were collected. The inclusion criteria were (1) patients aged ≥19 years and (2) those who underwent arthroscopic shoulder surgery because of rotator cuff tear within 3 months of hospitalization. Exclusion criteria were (1) patients with cardiovascular disease, kidney disease, or malignant tumors, (2) patients on medications because of impaired liver or kidney function, mental illness, or alcoholism, (3) pregnant and lactating patients, and (4) patients with insufficient medical records.

The 2-week integrative rehabilitation hospitalization program consisted of core treatments, including acupuncture with electrical stimulation, oral administration of HM, pharmacopuncture, cupping therapy, and physical therapy such as gentle passive range of motion (ROM) exercises and pendulum exercise. In addition, other treatments such as interferential current therapy and myofascial release technique were considered at the discretion of the healthcare professional. Personalized therapeutic regimens such as type and frequency of treatment were determined by KM doctor with more than 10 years of clinical experience, depending on the symptom severity, insurance coverage, and patient compliance. As outcomes, the Korean version of the Shoulder Pain and Disability Index (SPADI) questionnaire, 10 cm visual analog scale (VAS), and active ROM of the shoulder joint were assessed three times (day 1, 7, and 14) during hospitalization. Additionally, adverse events during the hospital stay were monitored. We performed statistical analysis using R statistical software version 3.5.3 to measure the difference between values at baseline and at the end of the treatment or midterm evaluation.

Total 15 patients were included. All patients had no prior history of shoulder surgeries, and all underwent arthroscopic shoulder surgery for tear of the supraspinatus. No patients had previously experienced integrative treatment for this condition. None of the patients took conventional medications during hospitalization. Compared to the baseline, the SPADI scores of total, pain, and disability were statistically significantly reduced at midterm evaluation (day 7) and after treatment (day 14) (all $P < .01$), and the VAS score for shoulder pain also decreased significantly at midterm evaluation and after treatment (all $P < .01$). Compared to the baseline, the ROM of the shoulder joint including flexion, extension, abduction, adduction, and external rotation increased statistically significantly at midterm evaluation and after treatment (all $P < .01$) (Fig. 1). There were no adverse reactions, and no retears during the treatment period.

These promising results raise the possibilities of integrative rehabilitation program for the improvement of function and pain management in patients following arthroscopic shoulder surgery. However, this was not confirmed by a controlled study, so it should be interpreted with caution. In situations where there are no standardized rehabilitation protocols after shoulder surgery and no randomized controlled trials evaluating the efficacy of integrative rehabilitation program following shoulder surgery, this is the first case series on an integrative rehabilitation treatment that is frequently used in KM clinical settings following shoulder surgery. Additionally, given the promising outcomes of our series, integrative rehabilitation programs might be considered as a candidate for developing an optimal rehabilitation strategy following arthroscopic shoulder surgery. Further well-designed and prospective controlled trials with larger sample size and a longer time period are needed to confirm these findings.

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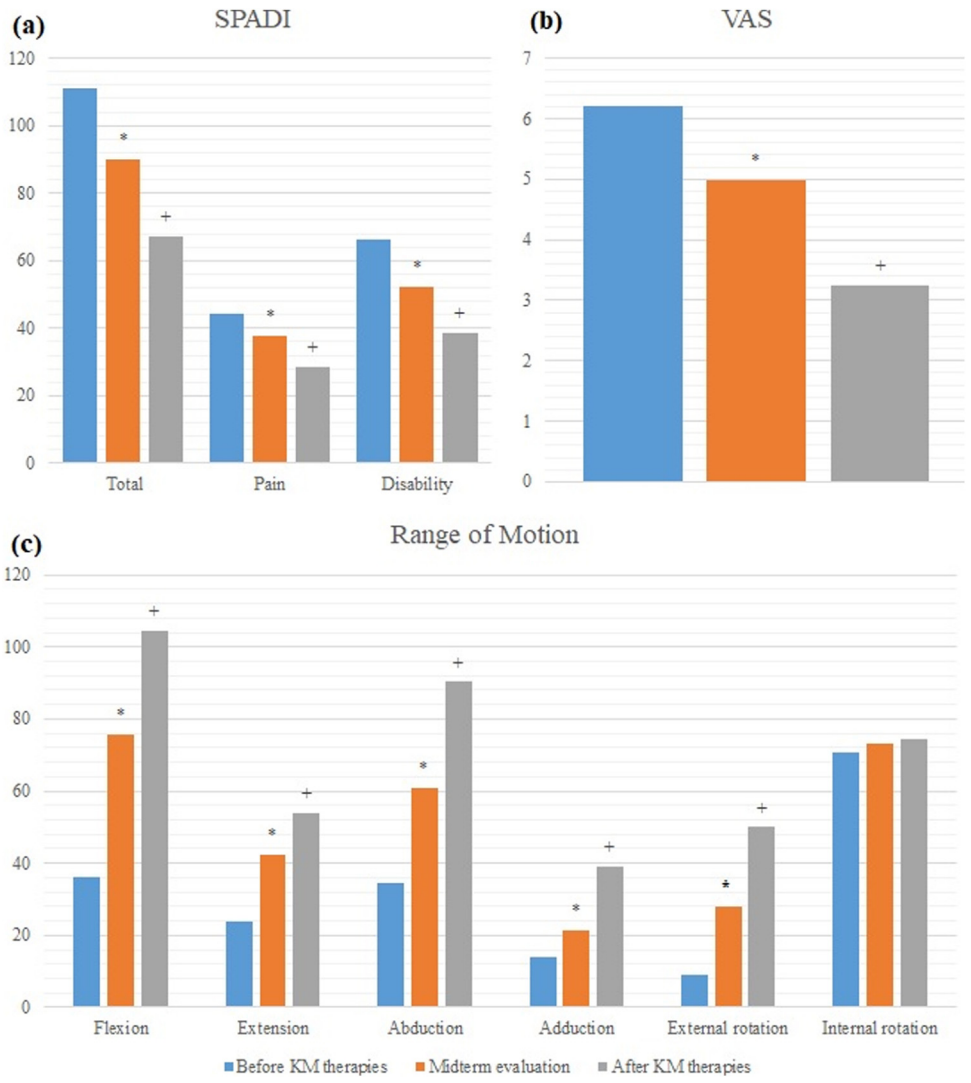

Fig. 1. Changes in (a) SPADI scores, (b) VAS scores, and (c) the range of motion of the shoulder joint.
Abbreviations: KM, Korean medicine; SPADI, shoulder pain and disability index; VAS, visual analog scale.
*P < .01, based on the paired t-test comparing before treatment and midterm evaluation data.
+P < .01, based on the paired t-test comparing before treatment and after treatment data.

Author contribution

NRL, SK, and KH designed the study. NRL performed the study. BL analyzed and interpreted the data, and drafted the manuscript. NRL, SK, CY, and KH critically revised the manuscript. All authors approved the final version of this manuscript.

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Ethical statement

The study was approved by our institutional ethics committee (KIOM I-1904/002-002). We obtained informed consent form from the patients, and their clinical records and information were anonymized and de-identified before analysis.

Conflicts of interest

The authors declare that there are no conflicts of interest.

Data availability

The data used to support the findings of this study are available from the corresponding author upon request.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.imr.2020.02.007.

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