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일개 한방병원 골절환자의 특성 분석

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Abstract

Analysis of clinical features of patients with fractures in a Korean medicine hospital

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Objective

This study was aimed to obtain epidemiological information of fracture patients treated with Korean medicine.

Methods

The medical records of 316 fracture patients treated at the Korean medicine Hospital from March 1, 2012 to June 30, 2017 were analyzed. Careful investigations were done by categorizing these patients by their gender and age, cause and region of fracture, western medical treatment, hospitalization period, Korean medical treatment type, etc.

Results

The highest percentage of causes of fracture was traffic accidents(45%). The fracture of lumbar vertebra was the most common(20%). 30% of the patients received splint or plaster cast treatment at the Orthpedics. The most hospitalization period was 3-4 weeks(27%). Almost all patients received Chinese medicine(99.4%) and acupuncture treatment(98.7%).

Conclusions

This study presented the characteristics of fracture patients treated by Korean medicine. Based on this study, further advanced study of Korean medical fracture treatments is needed.

Key words

Characteristics, Orthpedics, Bone, Korean medicine

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Ⅰ. Introduction

A fracture occurs when the bone or cartilage continuity is broken as a result of excessive force applied to the bone or cartilage[1]. There are five types of external forces that cause fracture: tension, compression, shear, bending, torsion, and rotation[2]. These external forces appear mainly during slips, traffic accidents, and sports injuries in daily life. Fractures also frequently result from these activities[3]. The cause of fractures in young adults is mainly strong external forces, such as slips and falls. On the other hand, the cause of fractures in the elderly is extensive minor trauma occurring in a state of decreased bone density[4].

Treatment of fractures includes anatomical reduction and fixation. These treatments are aimed at quickly repairing the damaged bone and surrounding tissues[5]. Fractures undergo the inflammatory phase, reparative phase, and remodeling phase during the healing process[1]. In Korean medicine, the healing process for fractures is composed of the static blood-removal phase, bone-setting phase, and recuperation phase[6]. According to a survey by the Ministry of Health and Welfare on the use of Korean medical institutions in 2014, 2.0% of all patients used Korean medical institutions to treat fractures[7].

Fractures are healed through surgical or non-surgical treatment. Non-surgical treatment is mainly used for stable fractures without dislocation. Patients receiving non-surgical treatment and those recovering after surgery may have symptoms such as pain, swelling, and numbness during treatment[8]. Therefore, the study of fracture treatment in Korean medical treatment is important for patients' rapid recovery and relief of symp- toms.

Previous studies include case reports on fracture treatment using Oriental medicine and studies on the development of effective drugs for fracture treatment. However, data on fracture patients admitted to Korean medicine hospitals are scant. The purpose of this study was to analyze patients who were hospitalized due to fracture and utilize the data to improve fracture treatment.

Ⅱ. Subjects and Methods

1. Subjects

The research involved 316 patients who were admitted to the Semyung University Hospital of Oriental Medicine for fracture treatment from March 1, 2012 to June 30, 2017. They were diagnosed with fracture by X-ray, CT, or MRI.

2. nalysis item

① Distributions of gender and age
② Cause of fracture
③ Region of fracture
④ Western medical treatment
⑤ Hospitalization period
⑥ Korean medical treatment type

Ⅲ. Result

1. Gender and age distributions

The number of female patients was 2.29 times that of male patients. Female patients were more common than male patients in all age groups except the teenager group. The group with the largest number of patients was the age 70–79 group (Table 1).

2. Cause of fracture

The cause of the fracture is as follows (Fig. 1). Fractures were caused by traffic accidents (143 patients), slips (76 patients), exercise injuries (36 patients), lifting a weight (29 patients), being struck (24 patients), falls from heights (12 patients), and unknown causes (2 patients).

3. Region of fracture

The region of the fracture is as follows (Fig. 2). Of all fracture patients, 252 patients had single fractures, and 64 patients had multiple fractures. Multiple rib and thoracic/lumbar vertebra fractures were also classified as multiple fractures. The fracture sites of single fractures were divided into lumbar vertebra (51 patients), rib (48 patients), thoracic vertebra (28 patients), femur (27 patients), coccyx (18 patients), radius (15 patients), clavicle (13 patients), sternum (13 patients), foot (10 patients), humerus (6 patients), ulna (6 patients), fibula (5 patients), hand (5 patients), sacrum (3 patients), tibia (2 patients), and cervical vertebra (2 patients).

4. Western medical treatment

Patients received the following western medical treatment before admission (Fig. 3). Two hundred sixty-seven (84%) patients visited the Western medical hospital before the Korean medicine hospital. They received treatment such as fixed treatment (96 patients), operation (86 patients), medication (79 patients), and reconstruction (6 patients).

Table 1. Gender and age distributions

Age \ Sex	Male	Female	Total (%)
Below 10	1	3	4 (1.3%)
10-19	4	2	6 (1.9%)
20-29	13	8	21 (6.6%)
30-39	10	11	21 (6.6%)
40-49	23	25	48 (15.2%)
50-59	16	59	75 (23.7%)
60-69	3	18	21 (6.6%)
70-79	24	57	81 (25.6%)
Above 80	2	37	39 (12.3%)
	96	220	316 (100.0%)

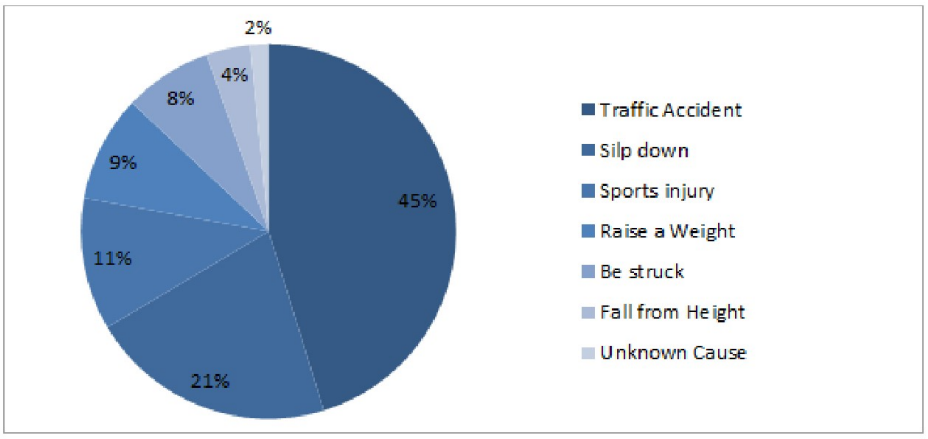

Figure 1. Cause of fracture

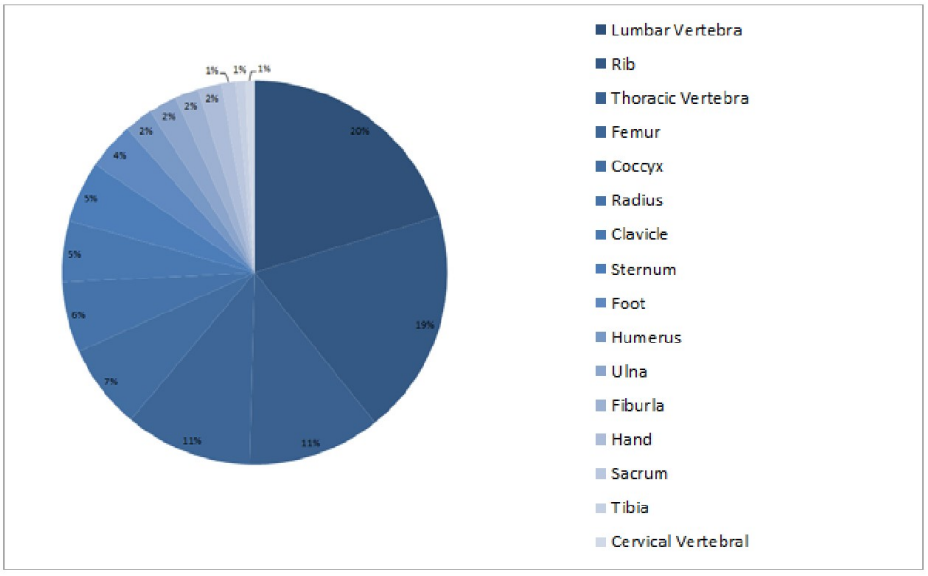

Figure 2. Region of fracture

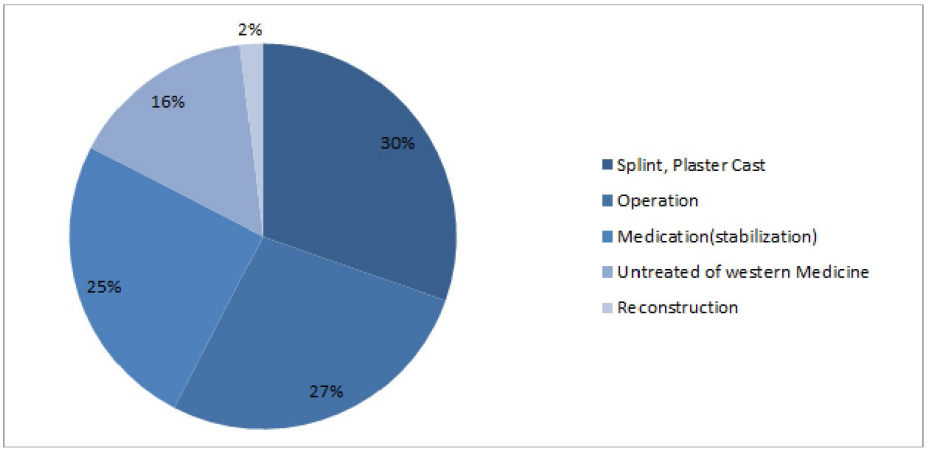

Figure 3. Region of fracture

5. Hospitalization period

The hospitalization period is as follows (Table 2). Most patients were hospitalized for three to four weeks (88 patients). Eighty patients were admitted for one to two weeks. Forty-five patients were admitted for two to three weeks. Forty patients were admitted for four to five weeks. Twenty-eight patients were admitted for more than six weeks. Twenty-five patients were admitted for less than a week. Twenty patients were admitted for five to six weeks.

6. Korean medical treatment type

Patients received the following Korean medical treatment in admission (Fig. 4). Of all patients, 99.4% received herbal medicine, 98.7% received acupuncture treatment, 47.2% received pharmacopuncture treatment, 13.9% received moxibustion treatment, and 6.3% received taping therapy.

Table 2. Hospitalization period

Age \ Sex	Male	Female	Total (%)
1-7 Days (< 1 Week)	6	19	25 (7.9%)
8-14 Days (1-2 Weeks)	21	59	80 (25.3%)
15-21 Days (2-3 Weeks)	17	28	45 (14.2%)
22-28 Days (3-4 Weeks)	27	61	88 (27.8%)
29-35 Days (4-5 Weeks)	12	18	40 (12.6%)
36-42 Days (5-6 Weeks)	9	11	20 (6.3%)
> 42 (> 6 Weeks)	4	24	28 (8.9%)
	96	220	316 (100%)

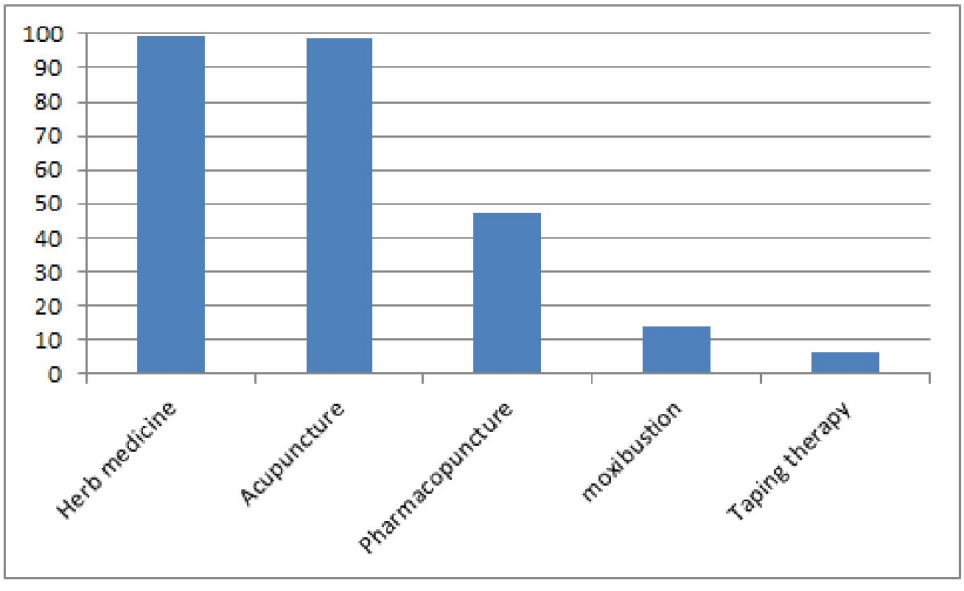

Figure 4. Korean medical treatment type

Ⅳ. Discussion

About 50% of patients receiving Korean medicine suffer from musculoskeletal disorders, and 2% of the patients visit the Korean medicine clinic for fracture treatment[7].

Patients with fractures often suffer from pain, edema, and bruising. Severe fractures can cause bone deformation, postural changes, abnormal movements, and nerve and vascular damage. Most fractures are confirmed by radiography. Even if there is no radiological confirmation, treatment may be performed if the clinical symptoms support the fracture diagnosis.

There are two types of fracture healing depending on the presence or absence of callus formation. In the state of complete fusion without a gap between fractured bones, a callus is not formed. This is called primary fracture healing, and it occurs after absolute stability fixation. In the state of complete fusion with a gap between fractured bones, a callus is formed. This is called secondary fracture healing, and it occurs after relative stability fixation. Surgical treatment of the fracture mainly serves to fix the fragmented bone in place. If surgical treatment is impossible or unnecessary, fixed treatment is performed. In this procedure, the fracture site is fixed to avoid movement as much as possible[8]. Factors such as hormone and nutritional status, fracture type, blood supply to the fracture site, and treatment method affect the fracture healing process[9].

In Korean medicine, the bones and kidneys are closely related. From a Korean medicine perspective, the smooth functioning of the kidneys helps patients to recover from bone disease[10]. In many Oriental medicine books, the fixation method is also explained as a method of healing fractures[11,12]. There are many books on herbal medicines used to treat fractures[13,14]. Thus, studies on the treatment of fractures using Oriental medicine are underway, and a clinical understanding of such fracture treatment is very important.

The largest fracture patient group at the Korean medicine hospital was the 70–79 age group. This is probably because fractures easily occur even with a slight impact and treatment takes a long time in patients in their seventies [8]. The proportion of female patients was more than twice that of men. Women tend to undergo hormone changes as menopause progresses, which lowers their bone mineral density. Aging also reduces bone strength, which makes it difficult to treat the elderly, especially elderly women[15]. It is estimated that this is one of the reasons for the high proportion of elderly and female fracture patients.

The most common cause of fractures was traffic accidents. More than 75% of patients had fractures due to traffic accidents, falls, or sports injuries. These results differ from those of previous studies on patients with thoracolumbar fractures[16,17], perhaps because patients were not limited to those with thoracolumbar fractures.

Eighty percent of the patients had single-region fractures. The lumbar vertebra was the most common single-fracture site. Less than 1% of patients had rib fractures. The fracture sites of the patients were varied. In this study, fracture sites were divided into 16 groups. There were

also patients with skull fractures, but they were excluded, because they were treated for problems other than the fracture.

Approximately 84% of patients visited the Korean medicine hospital after visiting the Western medical hospital. Patients who did not visit the Western medical hospital underwent radiological examinations with the cooperation of the Western medical hospital. Patients who had previously visited the hospital received medication, surgery, and fixed treatment. Most patients were prescribed medication. The fact that the majority of patients received only medication without fixed treatment is thought to be due to the relatively high number of patients with thoracolumbar compression fractures or rib fractures, as can be seen in this study.

The most common hospitalization period was between three and four weeks. About one-quarter of patients were hospitalized for one to two weeks. This is thought to be related to the fracture healing period. The fracture recovery period depends on patient age, fracture site, fracture type, etc. This study suggests only a simple hospitalization period, so more diverse research is needed on the treatment period.

Patients admitted to the Korean medicine hospital received herbal medicine, acupuncture, pharmacopuncture, and moxibustion treatment. The type of Korean medicine treatment did not differ from that in previous studies[16-18]. Herbal medicine was administered to all but two patients. Acupuncture was administered to all but four patients.

This study revealed the characteristics of fracture patients receiving inpatient treatment at a Korean medicine hospital. Research on how Korean medicine treatment can improve the pain and recovery of fracture patients has been carried out steadily. However, studies on the characteristics of fracture patients visiting Korean medicine hospitals are rare. Based on the results of this study, it is necessary to continue research to expand the range of Korean medicine treatment for fractures.

Ⅴ. Conclusion

Patients who visited the Korean medicine hospital for fracture treatment were analyzed and the following conclusions were obtained.

1. The most of the fractured patients who visited the Korean medicine hospital were in their 70s (25.6%). The proportion of female patients was 2.29 times that of male patients.
2. The most of the fractured patients who visited the Korean medicine hospital were caused by traffic accidents (45%).
3. The most of the region of fracture is lumbar vertebra (20%)
4. 84% of the patients were received of western medical treatment. The most common treatment is splint or plastic cast.
5. The most hospitalization period was 3-4 weeks (27%).
6. Almost all patients received Chinese medicine (99.4%) and acupuncture treatment (98.7%).

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