ISSN: 2584-0355
DOI: doi.org/10.51219/MCCRJ/Chaoqun-Zhang/315

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Vol: 3 & Iss: 3

Research Article

Osteophytes and Joint Pain Targeted

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Citation: Zhang C. Osteophytes and Joint Pain Targeted. *Medi Clin Case Rep J* 2025;3(3):1168-1170. DOI: doi.org/10.51219/MCCRJ/Chaoqun-Zhang/315

Received: 30 January, 2025; **Accepted:** 31 March, 2025; **Published:** 02 July, 2025

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ABSTRACT

This retrospective study explored the correlation between joint osteophyte severity and joint pain and evaluated pain-targeted nursing interventions in 30 patients with joint osteophytes. Patients were divided into intervention group (n=15) and control group (n=15). The control group received routine nursing care, while the intervention group received additional pain-targeted nursing interventions including multimodal pain management, pain education and activity modification based on pain levels. Primary outcomes included the correlation between osteophyte severity (Larsen grade) and pain intensity (VAS score) and the change in VAS score at 3 months. Secondary outcomes included Lequesne Index, pain interference with daily activities (PI-ADL) and patient satisfaction. Results showed a significant positive correlation between Larsen grade and initial VAS score ($r=0.68$, $p<0.01$). At 3 months, the intervention group had a significantly greater reduction in VAS score compared to the control group (4.8 ± 1.3 vs 2.3 ± 1.1, $p<0.01$). The intervention group also showed better improvement in Lequesne Index, PI-ADL score and higher patient satisfaction ($p<0.05$ for all). Pain-targeted nursing interventions effectively alleviate joint pain associated with osteophytes and improve patient outcomes.

Keywords: Osteoarthrosis; Larsen grade; Kellgren-lawrence grade; Lequesne index

Introduction

Joint osteophytes are closely associated with joint pain, which is the main symptom leading to reduced quality of life in patients[1]. However, the correlation between osteophyte severity and pain intensity is not absolute and effective pain management is crucial for nursing care[2]. This study aims to explore the correlation between joint osteophytes and joint pain and evaluate the effect of pain-targeted nursing interventions, providing evidence for clinical nursing practice[3].

Methods

Study design and participants

A retrospective analysis was conducted on 30 patients with joint osteophytes confirmed by radiography (knee joint in 22 cases, hip joint in 8 cases) admitted to our hospital. Inclusion criteria: age 45-75 years; osteophyte severity evaluated by Larsen grade (I-IV); joint pain lasting for more than 1 month. Exclusion criteria: inflammatory arthritis, joint infection, neurological diseases causing pain.

Grouping & interventions

Control subgroups: Routine nursing care, including pain assessment, medication guidance and general health education.

Intervention subgroups:

On the basis of routine nursing, pain-targeted nursing interventions were added:

- Multimodal pain management: combining physical therapy (hot/cold compress, transcutaneous electrical nerve stimulation), psychological intervention (relaxation training, cognitive behavioural therapy) and activity adjustment according to pain level.
- Pain education: explaining the relationship between osteophytes and pain, teaching pain self-assessment and coping skills.
- Individualized exercise program: formulating low-impact exercise plans based on pain tolerance, such as swimming, cycling and muscle strength training.

Outcome measures

- **Primary:** Correlation between Larsen grade and initial VAS score; change in VAS score (0-10, higher score indicates more severe pain) at 3 months.
- **Secondary:** Lequesne Index (evaluating joint function, 0-24, higher score indicates worse function); PI-ADL score (0-40, higher score indicates more severe pain interference); patient satisfaction (0-100, higher score indicates higher satisfaction).

Statistical analysis

SPSS 26.0 software was used for statistical analysis. Pearson correlation analysis was used to explore the correlation between Larsen grade and VAS score. Measurement data were expressed as mean ± standard deviation ($\bar{x}$±s) and independent sample t-test was used for comparison between groups. $P<0.05$ was considered statistically significant.

Results

Correlation between osteophyte severity and pain

There was a significant positive correlation between Larsen grade and initial VAS score ($r=0.68$, $p<0.01$) (Figure 1).

Baseline characteristics

There were no significant differences in age, gender, affected joint, Larsen grade, initial VAS score, Lequesne Index or PI-ADL score between the two groups ($p>0.05$), which were comparable **(Table 1)**.

Table 1: Comparison of baseline characteristics between the two groups.

Characteristics	Intervention Group (n=15)	Control Group (n=15)	p-value
Age (years, $\bar{x}$±s)	58.6±8.2	59.3±7.8	0.803
Gender (male/female, n)	8/7	7/8	0.735
Affected joint (knee/hip, n)	11/4	11/4	1.000
Larsen grade (I/II/III/IV, n)	2/8/4/1	3/7/4/1	0.917
Initial VAS score ($\bar{x}$±s)	7.2±1.3	7.0±1.2	0.652
Initial Lequesne Index ($\bar{x}$±s)	16.8±3.5	17.2±3.2	0.756
Initial PI-ADL score ($\bar{x}$±s)	22.5±4.1	23.1±3.8	0.689

Primary outcome

At 3 months, the VAS score in the intervention group was significantly lower than that in the control group and the reduction amplitude was significantly larger ($p<0.01$) **(Table 2)**.

Table 2: Comparison of VAS scores between the two groups at different time points ($\bar{x}$±s, points).

Group	n	Baseline	1 month	3 months	Reduction at 3 months
Intervention Group	15	7.2±1.3	4.5±1.1	2.4±0.9	4.8±1.3
Control Group	15	7.0±1.2	5.8±1.0	4.7±1.0	2.3±1.1
p-value	-	0.652	<0.001	<0.001	<0.001

Secondary outcomes

At 3 months, the Lequesne Index and PI-ADL score in the intervention group were significantly lower than those in the control group and the patient satisfaction was significantly higher ($p<0.05$) **(Table 3)**.

Table 3: Comparison of secondary outcomes between the two groups at 3 months ($\bar{x}$±s).

Outcome Indicators	Intervention Group (n=15)	Control Group (n=15)	p-value
Lequesne Index (points)	8.2±2.1	12.5±2.8	<0.001
PI-ADL score (points)	10.3±3.2	16.8±3.5	<0.001
Patient satisfaction (points)	85.6±6.3	68.2±7.5	<0.001

Discussion

This study found a significant positive correlation between joint osteophyte severity (Larsen grade) and joint pain (VAS score), which is consistent with previous studies[4]. However, it should be noted that pain is not only related to osteophyte itself but also affected by factors such as inflammation, muscle spasm and psychological state[5]. Therefore, pain management should not only focus on osteophyte but also take a comprehensive approach.

The pain-targeted nursing interventions in this study achieved good results. Multimodal pain management combines physical therapy and psychological intervention, which can exert synergistic effects. Physical therapy can relieve local inflammation and muscle tension, while psychological intervention can reduce pain perception by alleviating anxiety and improving coping ability[6]. Individualized exercise programs can enhance muscle strength around the joint, improve joint stability and reduce pain, which is supported by relevant research[7].

Pain education helps patients correctly understand the relationship between osteophytes and pain, reduces unnecessary fear and improves compliance with treatment and nursing[8]. The improvement of Lequesne Index and PI-ADL score in the intervention group indicates that relieving pain can effectively improve joint function and reduce pain interference with daily activities.

The limitations of this study include small sample size, single-centre retrospective design and lack of long-term follow-up. Future studies with larger samples and longer follow-up periods are needed to further verify the effectiveness of pain-targeted nursing interventions.

Conclusion

There is a significant positive correlation between joint osteophytes and joint pain. Pain-targeted nursing interventions can effectively reduce joint pain, improve joint function, reduce pain interference with daily activities and improve patient satisfaction. It is worthy of clinical promotion and application.

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