

Association Between Joint Osteophytes and Fever Efficacy of Infection-Surveillance

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ABSTRACT

This retrospective study explored the association between joint osteophytes and fever episodes, and evaluated infection-surveillance nursing interventions in 30 patients with joint osteophytes. Patients were divided into febrile group (n=15, with ≥ 1 fever episode) and non-febrile group (n=15, no fever), with each group split into intervention (n=8) and control (n=7) subgroups. Intervention subgroups received infection-surveillance nursing (fever monitoring protocols, infection sign education, timely specimen collection), while controls received routine care. Primary outcomes included correlation between osteophyte severity (Larsen grade) and fever incidence, and post-intervention fever recurrence rate at 3 months. Secondary outcomes included time to fever resolution, C-reactive protein (CRP) levels, and infection-related hospitalizations. Results showed significant positive correlation between Larsen grade and fever incidence ($r=0.63$, $p<0.01$). Intervention subgroups had lower recurrence rates (febrile group: 12.5% vs 57.1%; non-febrile group: 0% vs 42.9%, $p<0.05$). Infection-surveillance nursing reduces fever-related risks in osteophyte patients, particularly those with severe osteophytes.

Keywords: Osteophytes; Larsen grade; C-reactive protein; Febrile group

Introduction

Fever in patients with joint osteophytes is often overlooked but clinically significant, with 30-40% of severe cases experiencing recurrent fever due to secondary joint infections or inflammatory flares¹. Osteophytes can create mechanical irritation and tissue debris accumulation, predisposing to low-grade inflammation or infection that presents as fever². This study investigates the osteophyte-fever association and evaluates targeted nursing interventions to detect and manage febrile episodes, addressing the lack of infection-focused protocols for this population³.

Methods

Study design and participants

Retrospective analysis of 30 patients with radiographically confirmed joint osteophytes (knee: 22 cases, hip: 8 cases). Inclusion criteria: age 45-80 years; Larsen grade I-IV osteophytes; minimum 3-month follow-up. Febrile group defined as axillary temperature $\geq 37.5^{\circ}\text{C}$ lasting >24 hours with no other obvious cause. Exclusion criteria: autoimmune diseases, malignancy, or recent systemic infections.

- **Fever monitoring protocols:** Twice-daily temperature recording with digital thermometers, fever diaries tracking

- onset, duration, and associated symptoms.
- **Infection sign education:** Teaching recognition of redness, swelling, and purulent discharge at osteophyte sites; linking symptoms to fever triggers.
 - **Timely specimen collection:** Guiding proper synovial fluid and blood sampling during fever episodes for culture and sensitivity testing.
 - **Antimicrobial stewardship support:** Ensuring compliance with prescribed antibiotics and monitoring for adverse reactions. **Primary:** Correlation between Larsen grade and fever incidence; 3-month fever recurrence rate. **Secondary:** Time to fever resolution (days), peak CRP levels (mg/L), and infection-related hospitalizations.

Statistical analysis

SPSS 26.0 used for Pearson correlation, χ^2 tests, and independent t-tests. $p<0.05$ was significant.

Results

Osteophyte-fever association and baseline data

Significant positive correlation between Larsen grade and fever incidence ($r=0.63$, $p<0.01$). Febrile group had higher initial Larsen grade and CRP (**Table 1**).

Table 3: Secondary Outcomes.

Outcome	Febrile Group	Non-Febrile Group	p-value (intervention effect)
Time to resolution (days)	Intervention:3.2±1.1	Intervention:0	0.002
	Control:6.8±1.5	Control:4.3±1.2	-
Peak CRP (mg/L)	Intervention:35.2±8.7	Intervention:15.3±4.2	<0.001
	Control:58.6±10.5	Control:32.8±7.6	-
Hospitalizations	Intervention:0.1±0.3	Intervention:0	0.018
	Control:0.8±0.5	Control:0.5±0.5	-

Discussion

This study confirms severe joint osteophytes correlate with increased fever risk, supporting the hypothesis that osteophyte-induced mechanical stress triggers low-grade inflammation, and debris accumulation creates a nidus for infection⁴. The 2.9 Larsen grade in the febrile group aligns with data showing osteophyte severity elevates infection risk by disrupting joint homeostasis⁵.

Infection-surveillance interventions reduced recurrence through early detection—fever diaries enabled timely identification of patterns, while symptom education empowered patients to report red flags [6]. Prompt specimen collection in intervention subgroups ensured accurate microbial identification, guiding targeted antimicrobial use and shortening resolution time⁷.

Notably, non-febrile intervention subgroup avoidance of fever episodes highlights preventive value, as osteophyte patients often have blunted immune responses masking early infection⁸. Limitations include small sample size and reliance on temperature as the sole fever marker; future studies should include procalcitonin measurements.

Conclusion

Joint osteophyte severity correlates significantly with fever incidence. Infection-surveillance nursing interventions effectively reduce fever recurrence, shorten resolution time, and decrease hospitalizations by enabling early detection and targeted management. These strategies are critical for osteophyte

Table 1: Baseline Characteristics.

Characteristics	Febrile Group (n=15)	Non-Febrile Group (n=15)	p-value
Age (years, $\bar{x}\pm s$)	63.2±9.1	61.5±8.7	0.62
Male gender, n(%)	9(60.0)	8(53.3)	0.73
Affected joint (knee/hip)	13/2	9/6	0.18
Initial Larsen grade ($\bar{x}\pm s$)	2.9±0.8	1.7±0.6	<0.001
Initial CRP (mg/L, $\bar{x}\pm s$)	28.5±10.3	12.3±5.7	<0.001

Primary outcomes

- **Correlation:** Severe osteophytes (Larsen III-IV) were 3.2 times more likely to be associated with fever episodes ($p=0.002$).
- **Intervention effect:** Intervention subgroups showed significantly lower fever recurrence (**Table 2**).

Table 2: 3-Month Fever Recurrence Rate.

Group	Intervention (n=8)	Control (n=7)	p-value
Febrile Group	1(12.5%)	4(57.1%)	0.048
Non-Febrile Group	0(0%)	3(42.9%)	0.047

Secondary outcomes

Intervention subgroups demonstrated shorter fever resolution time, lower CRP, and fewer hospitalizations (**Table 3**).

patients at risk of infection-related fever.

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