



EFFECT OF ALENDRONATE ON AREA OF NECROSIS IN EARLY AVASCULAR NECROSIS OF HEAD OF FEMUR: A PROSPECTIVE OBSERVATIONAL STUDY

Orthopaedics

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ABSTRACT

Background: Avascular necrosis (AVN) of the femoral head is a debilitating disease that tends to progress over time, causing collapse of the structure. Alendronate is a bisphosphonate reported to deter bone resorption and potentially slow disease progression [1,2]. **Objective:** To measure the impact of Alendronate on the zone of necrosis in early AVN of the femoral head over 6 months. **Methods:** This prospective observational study investigated 30 patients (16 Stage I, 14 Stage II according to Ficat and Arlet classification). Patients were divided into two groups: Alendronate (n=15) and Control (n=15). Baseline and 6-month assessments of necrotic area were done using MRI. **Results:** The Alendronate group showed a mean necrotic area decrease of 5.9%, while the Control group showed a negligible change (mean decrease: 0.7%). **Conclusion:** Alendronate can decrease necrotic area in early AVN and may help prevent disease progression [3,4].

KEYWORDS

INTRODUCTION

Failure to adequately supply blood to the femoral head leads to avascular necrosis. Without early intervention, structural collapse is likely, necessitating total hip arthroplasty in later stages [5]. Bisphosphonates such as Alendronate suppress osteoclast activity, potentially preserving the femoral head structure in AVN [1,2]. Several studies have reported promising results in halting femoral head collapse and improving function when treatment is initiated early [6,7].

MATERIALS AND METHODS

This prospective observational study included 30 patients diagnosed with Stage I or II AVN (Ficat and Arlet classification). Patients were divided into:

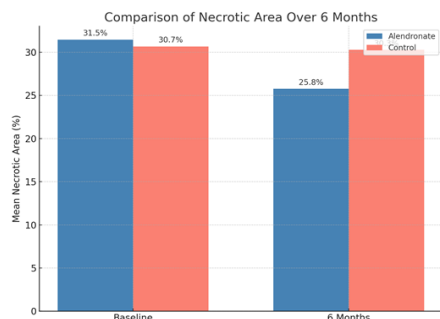
Group A: Conservative management + Alendronate 70 mg orally once weekly for 6 months.

Group B: Conservative management only.

MRI was used to measure necrotic area at baseline and 6 months. Functional status was evaluated using the Harris Hip Score [8].

RESULTS

Among the 30 patients, 15 received Alendronate, and 15 served as controls. In the Alendronate group, mean baseline necrotic area was 31.5%, which reduced to 25.8% at 6 months. In the control group, there was no statistically significant change. Functional scores improved in the Alendronate group as well, correlating with the radiological findings [9].



DISCUSSION

The results suggest that Alendronate may reduce necrotic area in early AVN, possibly delaying or preventing femoral head collapse [1,3,6]. These findings align with previous studies that demonstrated positive effects of bisphosphonates in AVN treatment [4,7]. However, this study is limited by small sample size and short follow-up duration.

Larger, randomized trials are needed to validate these findings [10].

CONCLUSION

Alendronate appears promising for early-stage AVN, inhibiting progression and reducing necrotic area. Its application in early management may postpone surgical intervention and preserve joint integrity.

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