

## **Risks of Intra-Articular Hip Corticosteroid Injections Include Rapidly Progressive Osteoarthritis and Femoral Head Collapse in Patients With and Without Pre-existing Osteoarthritis: A Systematic Review**

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**INTRODUCTION:** The purpose of this study was to conduct a systematic review of the literature to identify studies reporting cartilage-related complications associated with intra-articular hip corticosteroid injections (IACSI).

**METHODS:** A systematic review was conducted according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines by searching PubMed, the Cochrane Library, and Embase to identify any study/case report reporting on cartilage-related complications following IACSI. The search terms used were: *hip AND injection AND corticosteroid*. Inclusion criteria included any study/case report reporting on cartilage-related complications following intra-articular hip corticosteroid injections. Studies were excluded if they were unrelated to the hip joint, injection into the soft tissue surrounding the hip joint, and/or studies which did not report on any complications following corticosteroid injection into the hip joint. The outcomes assessed were rapidly progressive osteoarthritis (RPOA), osteonecrosis (ON), femoral head collapse (FHC), insufficiency fracture (IF), and worsening osteoarthritis (WOA) in patients with and without pre-existing osteoarthritis.

**RESULTS:** Twenty studies (1 Level II, 12 Level III, 3 Level IV, 4 Level V) met inclusion criteria with a total of 34,367 hips which underwent IACSI. The mean patient age ranged from 50.0 to 78.0 years, the average body mass index ranged from 26.3 to 31.4 kg/m<sup>2</sup>, and the overall percentage of females ranged from 5.5% to 100%. Excluding case reports, the RPOA incidence ranged from 0.2% to 21.1%, ON incidence ranged from 0.6% to 27.1%, FHC incidence ranged from 3.2% to 20.4%, IF incidence ranged from 0.4% to 1.3%, and WOA incidence ranged from 1.1% to 44.3%.

**DISCUSSION AND CONCLUSION:** Risks of IACSI include RPOA, ON, FHC, IF, and WOA, although the incidence rates of these outcomes vary notably. Adverse outcomes occur in patients without pre-existing OA, but most of the available literature reports these outcomes in patients with pre-existing OA.