<a>Effect of Corticosteroid Use on the Occurrence and Progression of Osteonecrosis of the Femoral Head: A nationwide Nested Case-Control Study

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INTRODUCTION: Although it is very well known that corticosteroids cause osteonecrosis of the femoral head (ONFH), it is unclear as to which patients develop ONFH. Additionally, there are no studies on the association between corticosteroid use and femoral head collapse in ONFH patients. We aimed to investigate the association between corticosteroid use and the risk of ONFH among the general population and what factors affect ONFH occurrence. Additionally, we aimed to demonstrate which factors affect femoral head collapse and total hip arthroplasty (THA) after ONFH occurrence.
METHODS: A nationwide, nested case-control study was conducted with data from the National Health Insurance Service Physical Health Examination Cohort (2002 to 2019) in the Republic of Korea. We defined ONFH (N = 3,500) using diagnosis and treatment codes. Patients who had ONFH were matched 1:5 to form a control group based on the variables of birth year, sex, and follow-up duration. Additionally, in patients who have ONFH, we looked for risk factors for progression to THA.
RESULTS:
Compared with the control group, ONFH patients had a low household income and had more diabetes, hypertension, dyslipidemia, and heavy alcohol use (drinking more than 3 to 7 drinks per week). Systemic corticosteroid use (≥ 1,800 mg) was significantly associated with an increased risk of ONFH incidence. However, lipid profiles, corticosteroid prescription, and cumulative doses of corticosteroid did not affect the progression to THA.
DISCUSSION AND CONCLUSION: The ONFH risk increased rapidly when cumulative prednisolone use was ≥ 1,800 mg. However, oral or high-dose intravenous corticosteroid use and cumulative dose did not affect the prognosis of ONFH. Since the occurrence and prognosis of ONFH are complex and multifactorial processes, further study is needed.