

## **Did the COVID-19 Pandemic Coincide with an Increase in Avascular Necrosis as Indication for Total Hip Arthroplasty?**

Jeffrey Okewunmi, Nicole Zubizarreta<sup>1</sup>, Jashvant Poeran<sup>2</sup>, Calin Stefan Moucha<sup>3</sup>, Brett Hayden, Darwin D Chen<sup>4</sup>  
<sup>1</sup>Icahn School of Medicine At Mount Sinai, <sup>2</sup>Mount Sinai, <sup>3</sup>The Mount Sinai Hospital, <sup>4</sup>Mount Sinai Hospital

### **INTRODUCTION:**

Avascular necrosis (AVN) of the femoral head is a common indication for total hip arthroplasty (THA). It is unclear to what extent the COVID-19 pandemic has impacted its prevalence. Such data may be important as, theoretically, the combination of microvascular thromboses seen in patients with COVID-19 and corticosteroids as a COVID-19 treatment option may increase the risk of AVN. We aimed to 1) assess recent AVN trends and 2) investigate if a history of COVID-19 diagnosis is associated with AVN.

### **METHODS:**

This IRB-exempt retrospective cohort study utilized the Medicare Limited Dataset. Data was extracted from elective THA cases performed between 2016 and 2020. Here, 2016-2019 was compared to 2020 in terms of AVN prevalence. Secondly, utilizing a cohort from April 2020 through December 2020, we investigated whether a prior COVID-19 diagnosis was associated with AVN. For both comparisons, a chi-square test was applied.

### **RESULTS:**

Among 951,300 THAs performed between 2016 and 2020 we found an AVN prevalence of 1.64% (n=2,949) in 2020 compared to 1.42% (n=10,976) in 2016-2019;  $p < 0.0001$ . Furthermore, using April-December 2020 data from 120,762 THAs we found that AVN was more common among those with a history of COVID-19 (1.75%; 29/1,630) compared to patients without a history of COVID-19 (1.0%; 1,186/117,917);  $p = 0.0023$ .

### **DISCUSSION AND CONCLUSION:**

AVN prevalence was higher in 2020 compared to previous years and a previous diagnosis of COVID-19 was associated with a greater likelihood of AVN. These findings suggest a role of the COVID-19 pandemic in an increased AVN prevalence. Continued monitoring is necessary to fully understand the impact of the COVID-19 pandemic on THA care and outcomes.