Risk factors for symptomatic Avascular Necrosis (AVN) in a multi-ethnic Systemic Lupus Erythematosus (SLE) cohort

ABSTRACT

Avascular necrosis of bone (AVN) is increasingly being recognized as a complication of SLE and causes significant disability due to pain and mobility limitations. We studied the prevalence and factors associated with avascular necrosis (AVN) in a multiethnic SLE cohort. SLE patients who visited the outpatient clinic from October 2017 to April 2019 were considered eligible. Their medical records were reviewed to identify patients who developed symptomatic AVN, as confirmed by either magnetic resonance imaging or plain radiography. Subsequently, their SLE disease characteristics and treatment were compared with the characteristics of patients who did not have AVN. Multivariable logistic regression analyses were performed to determine the independent factors associated with AVN among the multiethnic SLE cohort. A total of 390 patients were recruited, and the majority of them were females (92.6%); the patients were predominantly of Malay ethnicity (59.5%), followed by Chinese (35.9%) and Indian (4.6%). The prevalence of symptomatic AVN was 14.1%, and the mean age of AVN diagnosis was 37.6 ± 14.4 years. Both univariate and multivariable logistic regression analyses revealed that a longer disease duration, high LDL-C (low density lipoprotein cholesterol), positive anti-cardiolipin (aCL) IgG and anti-dsDNA results, a history of an oral prednisolone dose of more than 30 mg daily for at least 4 weeks and osteoporotic fractures were significantly associated with AVN. On the other hand, hydroxychloroquin (HCQ), mycophenolate mofetil (MMF) and bisphosphonate use were associated with a lower risk of AVN. No associations with ethnicity were found. In conclusion, several modifiable risk factors were found to be associated with AVN, and these factors may be used to identify patients who are at high risk of developing such complications. The potential protective effects of HCQ, MMF and bisphosphonates warrant additional studies.