9. *Monitoring of Osteonecrosis in Systemic Lupus Erythematosus Patients: a Systematic Review*

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Non-traumatic osteonecrosis (ON) is a well-recognized complication in systemic lupus erythematosus (SLE). Reported prevalence is 10–15% and can be up to 44% when asymptomatic patients are included. It has been well demonstrated that ON causes disability and affects quality of life (QoL). ON is often multifocal, further increasing the extent of disability. Bone collapse from ON has serious clinical implications and may lead to severe joint damage requiring total joint arthroplasty (TJA).

As part of the development of Canadian clinical practice recommendations in SLE patients, we performed a comprehensive review of optimal evaluation and monitoring of the risk of ON in SLE patients.

A systematic review was conducted using MEDLINE, PUBMED, EMBASE and COCHRAINE. These databases were searched up to February 2015 using the MeSH terms "Osteonecrosis", "Systemic Lupus Erythematosus" and synonymous text words. Randomized controlled trials (RCT), case control, cohort and cross sectional studies in English or French were included. This gathered evidence supporting or opposing monitoring of symptomatic or asymptomatic ON in SLE patients by performing history and physical exam, laboratory tests and imaging studies. Risk factors for ON in SLE patients were compiled. Also, questions specific to the Canadian context, such as resource requirements and acceptability to patients and clinicians, were considered. Two reviewers (S.H and M.S) assessed the quality of evidence using the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) method and a voting group was responsible for reviewing the evidence and providing final recommendations.

Of the 535 references yielded, 56 met inclusion criteria. In the literature, the major risk factor associated with ON remains the use of glucocorticoids (GC). ON is much more prevalent in SLE than in other systemic conditions requiring the use of CS, suggesting that the use of CS is not the only factor. There are multiple clinical variables associated with ON (Raynaud's phenomenon, vasculitis, antiphospholipid syndrome, arthritis, pleural effusion and central nervous system disease); all these research evidences are weak and the association between these variables and the development of ON is controverted.

No specific questionnaire, nor physical exam, nor laboratory test have been described to reliably establish the diagnosis of ON. Imaging methods for the diagnosis include conventional radiography, computed tomography (CT), radionuclide bone scans, and magnetic resonance imaging (MRI). However, these methods vary in their cost and diagnostic accuracy. Results of this review will inform the Canadian SLE recommendations currently in development.