0122

Sarcopenia, but Not Frailty, Predicts the Occurrence of Adverse Events after Emergent Surgery for Metastatic Disease of the Spine

Étienne Bourassa-Moreau[1,2], Anne Versteeg[3], Rafaele Charest-Morin[4], Nicolas Dea[5], Micheal Boyd[1], Marcel Dvorak[1], Charles Fisher[1], Brian Kwon[1], Scott Paquette[1]
[1]Combined Spine Program, University of British Columbia, Vancouver, BC, Canada, [2]Dept. Orthopedic Surgery, Université de Montréal, Montréal, Qc, Canada, [3]Dept. of Orthopaedic Surgery, University Medical Center Utrecht, Utrecht, The Netherlands, [4]Dept. Orthopedic Surgery, Centre Hospitalier Universitaire de Québec, Québec, Qc, Canada, [5]Dept. Neurosurgery, Université Sherbrooke, Sherbrooke, Qc, Canada

Objectives

Frailty and Sarcopenia are often considered synonymous, and both have been shown to predict adverse events (AE's) in a number of surgical populations. Patients with metastatic disease to the spine may be either frail or sarcopenia or both. The aim of this study was to investigate the independent prognostic values of frailty and sarcopenia for the occurrence of AE following emergent surgery for metastases.

Methods

An ambispective study of 281 patients, undergoing emergent surgery for spinal metastases from 2009-2015. Data included: demographics, tumour type and burden, neurological status, surgical and non-surgical treatment. AE's, including mortality were identified using SAVES V2. Sarcopenia was measured by Normalized Total Psoas Area (NTPA) on pre-op CT. Frailty was defined by Modified Frailty Index, calculated from extensive detailed co-morbidity data. Logistic Regression and Forward Selection Modelling with Hosmer-Lemeshow testing was used for statistical analysis.

Results

23% of patients had an intra-op and 52% a major post-op AE (SSI 3%, delirium 18%, UTI 35%). 22% of the patients died within 3 month of surgery. NTPA measurement took approximately 30 seconds per patient. Patients without a post-op AE had an average NTPA 20% greater than patients with an AE ($p=0.004$). Post-op AE's occurred in 30% of non-sarcopenic (NTPA ratio >1) and 68% of sarcopenic (NTPA ratio <1) patients ($p=0.003$). 11% of non-sarcopenic patients and 30% of sarcopenic patients within 3 month after surgery ($p<0.05$). Modified Frailty Index did not correlate with intra-op or post-op AE's or mortality.

Conclusion

Sarcopenia, as measured rapidly by Psoas Muscle Area on CT , independently predicts post-operative mortality and post-op adverse events in patients undergoing emergent surgery for spinal metastasis. The Modified Frailty Index, requiring data often not available in emergency situations, did not predict AE or life-expectancy. Sarcopenia, rather than Frailty, may be a more appropriate indicator of vulnerability and adverse outcome in patients with metastatic disease of the spine.

NOTE: *Étienne Bourassa-Moreau was the recipient of the award for the **2017 Best Fellow's Paper** at the 2017 Annual Scientific Conference of the Canadian Spine Society for this abstract presentation.*