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# A Novel Prognostic Scoring System combining the Revised Tokuhashi Score and the New England Spinal Metastasis Score for the preoperative evaluation of Spinal Metastases

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**Introduction:** Numerous scoring systems have been developed in order to determine the prognosis of spinal metastases. Predicting as accurately as possible the life expectancy of patients with spinal metastatic disease is very important, as it is the decisive factor in selecting the most optimal treatment for the patient. The Revised Tokuhashi score (RTS) and the New England Spinal Metastasis score (NESMS) are popular scoring systems used to determine the optimal treatment modality. However, they sometimes provide conflicting results. We propose a novel prognostic scoring system, which combines the (RTS) and the (NESMS) to predict with greater accuracy the prognosis.

**Methods:** We retrospectively reviewed the data of 64 patients with spinal metastasis enrolled between 2012 and 2021 in the Department of Orthopedic Surgery-Spine, Hôpital Maisonneuve-Rosemont, Montréal, Que. The new score per patient was then calculated as a combination of the RTS of each patient and the patient's corresponding NESMS score and then compared to the actual patient survival period in order to assess its adequacy in predicting the survival of patients with spinal metastases. The patients were divided into three groups: Low, Moderate or Good Prognosis.

**Results:** In the Low Prognosis group, the reliability of predicting the prognosis was 55.6% in 27 patients. In the Moderate Prognosis group, the reliability of predicting the prognosis was 95.8% in 24 patients. In the Good Prognosis group, the reliability of predicting the prognosis was 100% in 13 patients.

**Discussion:** This study demonstrates that a new prognostic scoring system, which would combine the RTS and the NESMS, is promising in providing an improved accuracy for predicting the actual patient survival especially for the moderate and good prognosis patients. An appropriate prospective investigation with a larger sample size should be conducted to further investigate the validity of this novel scoring system and its overall predictive value.

## Recent Publications

1. Scuderi, Giles R et al. "Total knee arthroplasty with a novel navigation system within the surgical field." The Orthopedic clinics of North America vol. 45,2 (2014): 167-73. doi:10.1016/j.ocl.2013.11.002
2. Babisch, Jürgen W et al. "The rationale for tilt-adjusted acetabular cup navigation." The Journal of bone and joint surgery. American volume vol. 90,2 (2008): 357-65. doi:10.2106/JBJS.F.00628
3. Amiot, Louis-Philippe, and François Poulin. "Computed tomography-based navigation for hip, knee, and spine surgery." Clinical orthopaedics and related research ,421 (2004): 77-86. doi:10.1097/01.blo.0000126866.29933.42

## Biography

Dionisia Mavritsakis is a third-year medical student at the Royal College of Surgeons in Ireland. Her interest in medicine was sparked during an international volunteer experience at a Medical Brigade where she had the opportunity to shadow licensed doctors in medical consultations. She has also completed the Student Training and Education program at the McGill University Health Center in Montreal, Canada. She appreciates the relationship between medicine and research and hopes in the future to be able to make valuable contributions to patients while also having a larger impact in the medical field. She discovered her love for research, when she became involved in a research study at the McGill gene research center.

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