

A validation study of the ProgMets score as a survival prediction tool in spinal metastasis

Fergus McCabe (Dublin 2, Ireland), Odhrán Murray (Galway, Ireland), Sandra O'malley (Dublin, Ireland), Marcus Timlin (Dublin, Ireland), John McCabe, (Galway, Ireland), Seamus Morris (Dublin, Ireland)

Introduction

The ProgMets score is a tool developed to aid survival prediction in spinal metastasis. The ProgMets score encompasses primary tumour type, extent of metastasis, serum albumin and sarcopaenia, as measured by the total psoas / L3 vertebral body ratio. This was an external validation study to assess the utility of the ProgMets score and compare it to other modern prognostic systems.

Materials and Methods

This was a retrospective cohort study of 100 consecutive patients with known spinal metastasis. Demographic, clinical and pathological data were recorded. The total psoas / L3 vertebral body ratio was calculated from cross-sectional computer tomography (CT) using Image J (U.S. National Institutes of Health, Bethesda, Maryland, USA). Bloods were recorded from the date of CT. The primary outcome measure was 1-year survival. Survival was calculated in days. Model fitting was performed with logistic regression. Statistical analysis was performed with R, version 4.4.1.

Results

Of 100 patients, 50 were female with a mean age of 58 years (SD: 14). A total of 48 patients underwent spinal surgery for metastasis, while 52 were treated non-operatively. The 90-day, 6-month and 1-year survival was 79%, 61% and 49% respectively. Of the six survival prediction models tested, the ProgMets Score had the lowest Brier Score (0.173) and highest C statistic (0.803), indicating the greatest predictive accuracy for one year survival. Furthermore, the ProgMets score had the most predictive Brier score for 90-day survival and 6-month survival.

Conclusion

This study of has validated the ProgMets score as a prediction tool for survival in spinal metastasis. Of six modern prognostic systems tested, the ProgMets score had the highest predictive accuracy for one year survival.