ERICA

The European Rare Disease Research Coordination and Support Action

Evaluating the Performance of Pan Ran's nomogram for predicting recurrence in GIST: an analysis of the Italian population

M. Grassi[1], M. Ponzano[2], M. Fedriga[2], L. Mastracci[3], F. Catalano[1], V. Murianni[1], S. Puglisi[1], M. Cremante[1], C. Pirrone[1], A. Damassi[1], L. Antonj[1], M. Mascherini[4], F. De Cian[4], S. Mammoliti[1], D. Comandini[1]

1) Medical Oncology Unit 1, IRCCS Ospedale Policlinico San Martino, Genova, Italy
2) Department of Health Sciences (DISSAL), IRCCS Ospedale Policlinico San Martino, Genova, Italy
3) Dipartimento Scienze chirurgiche e diagnostiche integrate, Università degli Studi di Genova, Genova, Italy
4) Department of surgery, IRCCS Ospedale Policlinico San Martino, Genova, Italy

OSPEDALE POLICLINICO SAN MARTINO
Sistema Sanitario Regione Liguria
Largo Rosanna Benzi, 10 - 16132 GENOVA

UNIVERSITÀ DEGLI STUDI DI GENOVA

 # 17
Outcome Research

Background

GISTs are a rare entity but the most common malignant gastrointestinal mesenchymal tumors. About 50% of GISTs are diagnosed with localized disease and the recognition of the relapse risk is essential for the management. [1,2,3] Different risk classification systems have been developed. [4,5,6,7,8] Pan Ran et al created a new nomogram for the Relapse Free Survival including new variables: DOG-1 positivity, gender and the effect of adjuvant therapy. [9] This new nomogram was developed and tested only in the Chinese population, but it is well known there are biological differences between Asian and Caucasian patients. [10] Therefore, we tested the performance of this newly developed nomogram in the Italian population.

Patients and Methods

We retrospectively analyzed the data of consecutive patients with primary localized GISTs underwent surgery at IRCCS San Martino Policlinic Hospital from 1995 to 2023. The prognostic index (PI) was calculated based on the Cox coeffcients reported. Univariable Cox PH models were performed in the validation dataset for all the variables included in the PI and variableswith a p-value<0.10 were included in the multivariable. Then a Cox model was run including the PI. C-index and Gonen and Heller Index were derived. Model fit in the validation set was assessed by running a Cox regression with the PI as an offset variable. The C-index and ROC curves were derived to measure discrimination and compare the performance with other commonly used prognostic tools.

Results

A total of 103 patients were included. At 5 years variables associated to events in the univariable models were mitotic count (5-10 vs <5: HR=9.87, p=0.006; >10 vs <5: HR=15.41, p=0.001) and tumor size (5-unit incr.: HR: 1.62, p=0.015). Mitotic count was significant in the multivariable model (p-values: 0.013 and 0.001). [Fig. 1] The PI was significantly associated with time to event at 5-years (PI 1-unit increase: HR=1.88, p=0.003) and c-index and Gonen and Heller Index were respectively 0.67 and 0.71. However, the PI showed a lack of fit in the validation dataset (p=0.016). At 5 years the C-indexes were 0.67 Pan Ran vs 0.87 Joensuu, 0.84 Miettinen, 0.86 MSKCC. ROC AUC were Pan Ran 0.68, Joensuu 0.88, Miettinen 0.88, MSKCC 0.87. [Fig. 2]

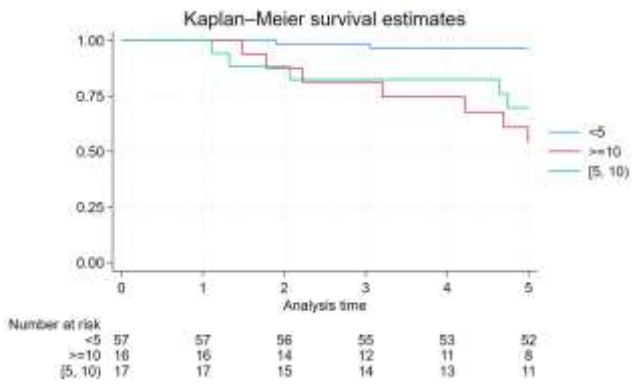

Figure 1. RFS based on mitotic count

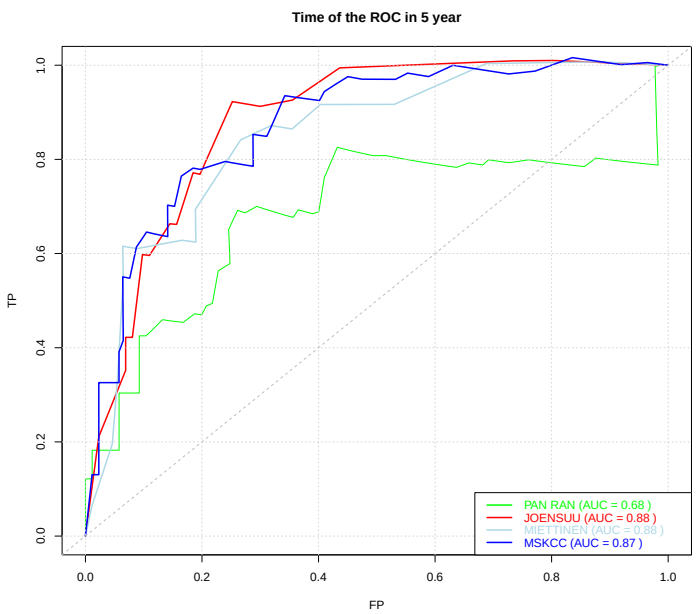

Figure 2. 5-years ROC curves for each prognostic scoring system

Conclusions

Pan Ran's nomogram has a lower discriminating ability than the existing prognostic scores in the Italian population. However, some of its variables such as the use of adjuvant therapy, are promising and could be integrated in future prognostic scores.

Bibliography

1. Miettinen M, et al. Arch Pathol Lab Med. 2006
2. Rubin BP, et al. The Lancet 2007
3. El-Menyar A, et al. J Cancer Res Ther 2017
4. Miettinen M, et al. Semin Diagn Pathol. 2006
5. Gold JS, et al. Lancet Oncol 2009
6. Chok AY, et al. Ann Surg Oncol 2015
7. MSKCC online nomogram. Accessed 2024
8. Joensuu H, et al. Lancet Oncol 2012
9. Ran P, et al. J Pers Med 2023
10. Zhang X, et al. Ann Surg Oncol 2020

Contact and Disclosure

Corresponding author: Massimiliano Grassi

E-mail: massimiliano.grassi@hsanmartino.it

Conflicts of interest: nothing to declare.