

Title: Prognostic Nutritional Index (PNI) as a prognostic factor for Overall Survival in patients with gastrointestinal peritoneal metastasis undergoing Pressurized Intra Peritoneal Aerosol Chemotherapy (PIPAC): a prospective, single-center experience

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Background and aims: Immunonutritional status is associated with cancer development, progression, and therapy response in many solid tumors. The aim of our study was to evaluate its prognostic value in patients undergoing PIPAC for gastrointestinal peritoneal metastases (PM).

Methods: We prospectively recorded data of PM patients undergoing PIPAC between September 2018 and May 2020. A complete nutritional evaluation assessment was performed for each patient. Laboratory test included albumin (ALB) levels, white blood cells (WBC), neutrophil (NEU), lymphocyte (LYM) and platelet (PLT) count. PNI was calculated as follow: $ALB [g/l] + 0.005 \times LYM$, while NLR: NEU/LYM ; pathological response was evaluated according to the Peritoneal Regression Grading Score (PRGS). A Cox regression model was constructed to evaluate Overall Survival (OS).

Results: Fifty-one patients were enrolled. PNI and NLR predicted completion of more than one PIPAC cycle, with a cut-off of 36.5 and 4.8, respectively. Muscle Attenuation (38.2 HU vs 43.6 HU; $p=0.02$) and Body Fat Tissues were associated with pathological response. The presence of a low PNI (HR 2.41, 95% CI 1.08-5.46) was significantly associated with worse OS.

Conclusions: The assessment of immunonutritional status may help in selecting patients undergoing PIPAC. PNI represents a valuable tool in predicting OS, while body composition parameters seem to be related to pathological response.