

## **Neoadjuvant Chemo-Radiotherapy for Patients with Borderline Resectable Pancreatic Cancer: A Meta-Analytical Evaluation of Prospective Studies**

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**Context** For patients with borderline resectable pancreatic cancer, the benefit of neoadjuvant therapy remains to be defined. **Objective** We did a systematic search of the literature on this topic. **Methods** Prospective studies, where chemotherapy, irrespective of regimen, in combination with radiotherapy was given before surgery to patients with borderline resectable cancer, were analyzed by a meta-analytical method. Primary outcome was tumor response; surgical exploration rate, resection rate, therapy-induced toxicity, and survival were secondary outcomes. Data were expressed as weighted pooled proportions with 95% confidence interval (95% CI). **Results** Eleven studies with 247 participants were included. Three were phase I/II trials, 3 phase II, and 5 prospective cohort studies. The complete/partial response rate was 17.1% (95% CI: 10-26%). Stable and progressive disease were 61.4% (95% CI: 51-70%) and 24.3% (95% CI: 16-33%), respectively. Treatment-related

grade 3-4 toxicity was 34.6% (95% CI: 24-46%). At restaging following neoadjuvant therapy, 67.5% of patients (95% CI: 54-78%) underwent surgery, and 80.3% of them (95% CI: 67-88%) underwent resection. R0 resections amounted to 82.1% (95% CI: 74-88%). Estimated 1- and 2-year survival probabilities after resection were 52.1% (95% CI: 33-70%) and 44.9% (95% CI: 21-71%), respectively. **Conclusion** Our data cast some concern on the value of neoadjuvant therapy for patients with borderline resectable pancreatic cancers: if the intent of therapy were to induce tumor shrinkage and to allow curative surgery, this is only accomplished in one out of 7 patients; moreover, two thirds of patients could have been explored at their initial presentation, as they underwent surgery despite an unsuccessful response to therapy. The only benefit of this approach seems to be sparing surgery for patients with progressive disease.