# Resection rate with FOLFIRINOX-based neoadjuvant therapy in locally advanced/borderline resectable pancreatic cancer: a pooled analysis of published data

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## Abstract

Background: borderline resectable or unresectable pancreatic cancer (PC) could potentially be converted to surgery after neoadjuvant chemotherapy with or without radiotherapy (RT). We have systematically reviewed the published literature with 5-Fluorouracil + leucovorin + irinotecan + oxaliplatin (FOLFIRINOX)-based neoadjuvant chemotherapy in unresectable or borderline resectable PC. Methods: studies were identified using a PubMed, EMBASE, SCOPUS, Web of Science and Cochrane Central Register of Controlled Trials. Primary outcome measures were rate of resection and rate of radical (R0) resection. Pooled proportions and 95% confidence intervals (CIs) were calculated using random-effects or fixed effects models based on the heterogeneity of included studies. Results: 13 papers were included (n=2 phase 2 trials and n=11 retrospective series) for a total of 253 patients analyzed. Borderline resectable and unresectable PC ranged from 17 to 100% and from 52 to 100% of cases, respectively. Chemoradiotherapy (CTRT) following FOLFIRINOX was integrated into treatment strategy in 15-100% of these patients, mainly with concomitant gemcitabine, capecitabine or 5-Fluorouracil. Overall resection rate was 43% (95% CI 32.8%–53.3%) and R0 resection rate (in 9 trials with available data) was 39.4% (95% CI 32.4%–46.9%). Rate of R0/resected patients was 86.1% (95% CI 78.2%–91.5%). Compared to 2 meta-analyses of published studies that did not consider FOLFIRINOX regimens (Gillen et al., PLOS 2010; Assifi et al., Surgery 2011) rate of R0 resection among initially not resectable PC patients seems increased (from 26.2 and 19.6%, respectively, to 39.4%). Among borderline resectable PCs rate of R0 resection was 63.5% (95%CI 49-76%); in unresectable PCs it was 22.5 (95% CI 13.3-35.4%). Only seven articles contain information about overall RR. The pooled RR was 35.4 (95%CI 27,7-43.9%). Conclusions: FOLFIRINOX plus or minus CTRT is associated with an interesting rate of resection and R0 resection in borderline resectable or unresectable PC. Compared to historical data published in Gillen metanalysis the rate of R0 resection seems increased by 50%.

## Objectives

Borderline resectable or unresectable pancreatic cancer (PC) could potentially be converted to surgery after neoadjuvant chemotherapy with or without radiotherapy (RT). We have systematically reviewed the published literature with 5-Fluorouracil + leucovorin + irinotecan + oxaliplatin (FOLFIRINOX)-based neoadjuvant chemotherapy in unresectable or borderline resectable PC.

## Methods

Studies were identified using a PubMed, EMBASE, SCOPUS, Web of Science and Cochrane Central Register of Controlled Trials without an upper-limit date and up to March 23rd 2014.

Primary outcome measures were: rate of resection and rate of radical (R0) resection.

Pooled proportions and 95% confidence intervals (CIs) were calculated using random-effects or fixed effects models based on the heterogeneity of included studies.

## Results (1)

**13** papers were included (n=2 phase 2 trials and n=11 retrospective series) for a total of **253** patients analyzed. Borderline resectable and unresectable PC ranged from 17 to 100% and from 52 to 100% of cases, respectively.

Chemoradiotherapy (CTRT) following FOLFIRINOX was integrated into treatment strategy in 15-100% of these patients, mainly with concomitant gemcitabine, capecitabine or 5-Fluorouracil.

Overall resection rate was **43%** (95% CI 32.8%–53.3%) and R0 resection rate (in 9 trials with available data) was **39.4%** (95% CI 32.4%–46.9%) (Fig. 1).

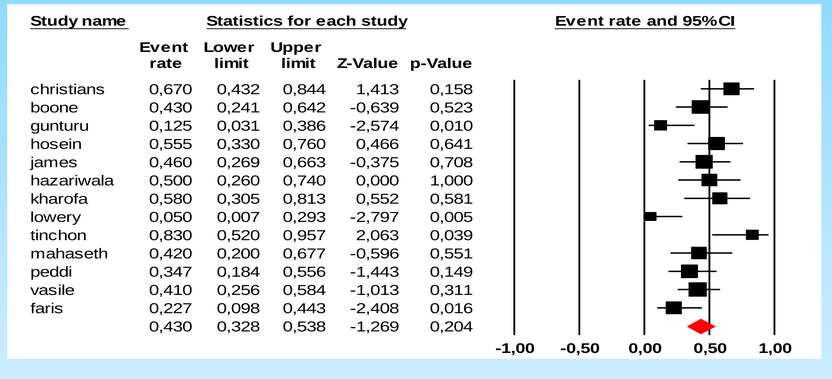
Rate of R0/resected patients was **86.1%** (95% CI 78.2%–91.5%).

Among borderline resectable PCs rate of R0 resection was **63.5%** (95%CI 49-76%); in unresectable PCs it was **22.5** (95% CI 13.3-35.4%).

Only seven articles contain information about overall RR. The pooled RR was **35.4** (95%CI 27,7-43.9%).

## Results (2)

Fig. 1




## Conclusions

- FOLFIRINOX plus or minus CTRT is associated with an interesting rate of resection and R0 resection in borderline resectable or unresectable PC.
- Compared to 2 meta-analyses of published studies that did not consider FOLFIRINOX regimens (Gillen et al., PLOS 2010; Assifi et al., Surgery 2011) rate of R0 resection among initially not resectable PC patients seems increased by 50% (from 26.2 and 19.6%, respectively, to 39.4%).

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