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Post-operative serum procalcitonin vs. C-reactive protein as a marker of post-operative infectious complications in pancreatic surgery: A systemic review and meta-analysis

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Introduction: The aim of this meta-analysis was to compare the diagnostic accuracy of C-reactive protein (CRP) and Procalcitonin (PCT) between postoperative days (POD) 3 to 5 in predicting infectious complications post pancreatic surgery.

Methods: A systemic literature search was performed using MEDLINE, EMBASE, and SCOPUS to identify studies evaluating the diagnostic accuracy of PCT and CRP as a predictor for detecting infectious complications between POD 3 to 5 following pancreatic surgery. A meta-analysis was performed using the random-effect model and pooled predictive parameters. Geometric means were calculated for PCT cut-offs.

Results: After applying inclusion and exclusion criteria 15 studies consisting of 2,212 patients were included in the final analysis according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. Pooled sensitivity, specificity, Area under the curve, and diagnostic odds ratio (DOR) for day 3 CRP were respectively 62%, 67%, 0.772, and 6.54. Pooled sensitivity, specificity, Area under the curve, and DOR for day 3 PCT was respectively 74%, 79%, 0.8453, and 11.03. Sensitivity, specificity, Area under the curve and DOR for day 4 CRP were respectively 60%, 68%, 0.8022, and 11.90. Pooled sensitivity, specificity, and DOR of postoperative day 5 PCT level in predicting infectious complications were respectively 83%, 70%, and 12.9. Pooled sensitivity, specificity, Area Under a ROC Curve, and diagnostic odds ratio were respectively 50%, 70%, 0.777, and 10.19.

Conclusions: Post-operative PCT is better marker to predict post-operative infectious complications after pancreatic surgeries and post-operative day 3 PCT has highest diagnostic accuracy.

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