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Review Article

**RISK FACTORS FOR POST ERCP PANCREATITIS:
A NARRATIVE REVIEW**

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Abstract:

Background: Post- endoscopic retrograde cholangiopancreatography (ERCP) pancreatitis (PEP) is the commonest and a severe complication after either diagnostic or therapeutic endoscopic retrograde cholangiopancreatography.

Aim: This review aimed at evaluating the risk factors for PEP which is important for recognizing the high-risk patients to choose the proper management and diagnostic factors.

Methods: The PubMed and Google Scholar databases were searched using the keywords: risk factors, endoscopic retrograde cholangiopancreatography (ERCP), and pancreatitis, then the articles were evaluated then all the eligible English studies during the last ten years considering the risk factors for PEP among patients either undergoing therapeutic or diagnostic ERCP were included in the present study.

Results: The search results produced 27 articles that were published between 2009 and 2019.

Conclusion: female gender, previous PEP, previous pancreatitis, cholecystectomy, and SOD were all risk factors for PEP and should be considered to avoid the induction of PEP.

Keywords: risk factors, endoscopic retrograde cholangiopancreatography (ERCP), pancreatitis

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INTRODUCTION:

Endoscopic retrograde cholangiopancreatography (ERCP) was presented since 1968 and was used for analytic and then to remedial procedures for different biliary and pancreatic illness after improving its magnetic resonance cholangiopancreatography (MRCP) [1].

Post-ERCP pancreatitis (PEP) is the most widely recognized as the extreme complexity related with analytic and remedial ERCP [2, 3]. A small portion of patients may suffer from extreme pancreatitis due to delayed hospitalization for longer periods, admission to emergency unit and usage of significant medical clinic assets thus these patients are at high risk of PEP morbidity and mortality [4, 5].

The acute pancreatitis incidence post ERCP ranged from 1.6 to 15% during the last twenty years [6-8]. The majority of post-ERCP pancreatitis (PEP) cases are in general minor to moderate in seriousness. Just about 0.4% of patients experiencing ERCP could suffer from serious intense pancreatitis, and PEP mortality was indicated among 0.11% of patients. Besides, pancreatitis is the absolute most basic purpose behind ERCP-related claims, representing up to half of all ERCP-related prosecution [9].

While the innovation and gear of ERCP keep on improving, reduction of PEP occurrence is still a clinical issue. It is helpful to recognize precisely which conditions are identified with this complexity to keep away from PEP in patients in whom defensive endoscopic or pharmacological measures ought to be considered [10]. There is still contention concerning the hazard factors identified with PEP. The point of the present review is to evaluate the risk factors of PEP.

METHOD:

A systematic literature search was conducted in the PubMed and the first hundred articles in Google Scholar. The items acute pancreatitis, post-ERCP, risk factors were used with the protean AND or OR, then the articles were evaluated then all the eligible English studies during the last ten years considering the risk factors for PEP among patients either undergoing therapeutic or diagnostic ERCP were included in the present study. Out of 156 articles retrieved, only twenty-seven articles fulfilled the inclusion and exclusion criteria.

RESULTS:

The initial research resulted in 156 studies, then only English, literate reviews, meta-analysis and prospective studies conducted during the last ten years and answer the review questions regarding the risk factors of PEP. Only 27 articles were

included in this review that were published between 2009-2019. Older studies will be included if there's no new studies to support the importance of a risk factor.

DISCUSSION:

ERCP is the technique of decision for treating the diseases of biliary tract and pancreatic infections. While the innovation and hardware of ERCP keep on improving, postoperative intricacies can't be totally maintained a strategic distance from because of the obtrusive type of this medical procedure. PEP was the most genuine and basic entanglement following ERCP. Step by step instructions to decide chance variables for PEP is a very dire clinical issue since it is basic for recognizing patients at high hazard and hence picking other appropriate treatment, for example, attractive reverberation cholangiography, endoscopic ultrasonography, percutaneous transhepatic biliary seepage, etc.

After screening, 27 studies which provided data about risk factors for PEP were included in this review.

The results suggest that female gender, previous PEP, previous pancreatitis, cholecystectomy, SOD and so on were all risk factors for PEP.

Patients related factors:**- Gender**

It is hard to determine if female sexual orientation is a significant hazard factor. The expanded occurrence of PEP among females would presumably be on the grounds that Sphincter of Oddi dysfunction (SOD) influences ladies more than men [11].

- Indication of suspected sphincter of Oddi dysfunction:

SOD is an amiable noncalculous obstructive disease happening at the degree of the Sphincter of Oddi which causes pancreaticobiliary-type torment. Criteria for diagnosing SOD have been set up by the Rome III meeting [29]. Patients associated with having SOD ought to have scenes of stomach torment that is situated in the epigastrium and right upper quadrant and is related with long term (more than 30 min), repetitive, history of previous illness, consistent, extremely severe. SOD is an unequivocal autonomous hazard factor for PEP in certain investigations [12, 13]. The position of a pancreatic stent or nasal pancreatic waste would fundamentally lessen the occurrence of PEP in patients with SOD [14-16].

- History of previous pancreatitis or post-ERCP pancreatitis

Some studies revealed a significant relationship

between the presence of previous pancreatitis or post-ERCP pancreatitis and development of PEP [17, 18].

- **History of previous cholecystectomy**

It was found as a significant risk factor for PEP in some studies [19] while others showed insignificant relationships between PEP incidence and the risk of previous cholecystectomy [7, 20].

- **Procedure-related risk factors**

A few specialized elements are recognized to expand the risk of post-technique pancreatitis in multivariate investigations or meta-examinations. Troublesome cannulation can bring about injury to the ampulla and expands the danger of ensuing pancreatitis free of different variables. The hazard increments with a more prominent number of cannulation endeavors, with one examination which incorporated a wide range of intra-ERCP systems showed that the higher number of cannulation attempts, the higher risk of PEP [21]. Spending more than 10 minutes endeavoring cannulation additionally builds the hazard, although even a span surpassing 5 minutes may expand the danger of post-ERCP pancreatitis when contrasted and shorter-length endeavors [22]. Pancreatic channel cannulation, pancreatic pipe infusion/pancreatogram, pre-cut sphincterotomy, pancreatic sphincterotomy, ampullectomy and more than one section of a pancreatic guide wire have likewise over and over again been recognized as free hazard factors for post-ERCP pancreatitis [23-25].

- **Prevention:**

Recognition and assurance of PEP high risk patients are considered of the most significant viewpoints for the anticipation of PEP. Patients with high hazard elements ought to be thoroughly surveyed, and elective remedial and analytic systems might be best for them rather than ERCP[26].

Pharmacological specialists with exceptionally exact outcomes, as NSAIDs, can be useful to weaken advancement of PEP [27].

Because of the multifactorial system of the presentation of PEP, counteractive action of PEP can flop through focusing on just a single causative factor [5, 27]. Blend of numerous mediations might be increasingly viable through legitimate patient determination, organization of prophylaxis pharmacologic specialists and procedural systems. In any case, further investigations are expected to solidify prophylaxis effects of each of these interventional approaches on the counteractive action of PEP.

CONCLUSION:

The event of PEP is associated with, female gender, the age under 60 years of age, history of previous PEP, pancreatitis, cholecystectomy, the pancreatic pipe improvement, intubation difficulty and overlong time of the surgery. Setting nasobiliary seepage catheters after the procedure, evading the pancreatic conduit advancement, improving the achievement pace of intubation, diminishing ERCP surgery time and different techniques, can successfully lessen the occurrence of PEP

What is known about this subject:

Post-ERCP pancreatitis is a common serious complication. However, the risk factors are not well established

2. What new information is offered in this review?

Female gender, previous PEP, previous pancreatitis, cholecystectomy, and SOD were all risk factors for PEP.

3. What are the implications for research, policy, or practice?

The mentioned risk factors may be indications for non-steroidal anti-inflammatory drugs and or stents to avoid the morbid and mortal PEP.

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PEER REVIEW

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CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

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ETHICS COMMITTEE APPROVAL

Not applicable

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