Pancreatic stent is the best tool to prevent post-ERCP pancreatitis in high-risk patients: Is the result from recent network meta-analysis valid?

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With great interest, we have read the recent network meta-analysis by Njei et al [1] comparing the effectiveness of endoscopic and pharmacological interventions in terms of the prevention of post-ERCP pancreatitis (PEP). We applaud the authors for their work to answer this clinically relevant question by performing network meta-analysis, which is a very intricate type of analysis to compare multiple interventions in the setting of paucity of head-to-head clinical trials. This study shows pancreatic stent to be the most effective intervention for high-risk patients followed by Ringer's lactate in combination with rectal nonsteroidal anti-inflammatory drugs (NSAIDs). However, by looking at data presented in their manuscript and thorough review of articles included for analysis, we have some concerns.

First of all, the authors stated that they only included randomized controlled trials (RCTs) with high-risk patients. While that is true of all the studies evaluating the role of the pancreatic stent as shown in **Fig. 5** of network meta-analysis [1], it's not true for studies evaluating rectal NSAIDs and Ringer's lactate. All the studies using Ringer's lactate except Mok et al 2017 shown in **Fig. 4** of the manuscript [1] do not seem to be limited to high-risk patients only. In addition, studies using rectal NSAIDs shown in **Fig. 3** of the manuscript [1] have the following issues: 1) No studies except for Elmunzer et al 2012 and Murray et al 2003 mention that only high-risk patients were included, on contrary, some of them mention including average to high-risk patients; 2) A closer look at those studies shows that the number of patients with PEP mentioned in **Fig. 3** of the study [1] are in fact numbers of patients with only moderate to severe pancreatitis, instead of the number of PEP in high-risk patients; 4) We can't identify a way to isolate the number of high-risk patients and the incidence of PEP from the study articles themselves.

We also noticed an error in the number of patients included in the analysis not meeting inclusion criteria, in ▶**Table 1** and ▶**Table 2**. The patients in RCTs by Sotoudehmanesh et al 2007 and Otsuka et al 2012 were stratified as average risk in previous network meta-analysis by Akbar et al published in 2013 [2] in contrast to current network meta-analysis by Njei et al [1]. Thus, as per the authors' inclusion criteria ideally, only 15 studies would have data on PEP incidence in high-risk patients instead of the 29 studies that the authors incorporated for this analysis. Finally, we speculate that the data were included in the network meta-analysis to arrive at a conclusion. If that is true, it might affect overall results of the study, and if not, it might at least affect the validity of this analysis.

▶ **Table 1** Issues with studies of Ringer's lactate for PEP prevention included in the network as high risk.

Study	Availability of PEP incidence data from high-risk patients in original studies	Issues with current network-analysis
Buxbaum el al 2014	No separate incidence data based on risk	Incidence data from all patients were included regardless of risk class
Shaygan-Nejad et al 2015	No separate incidence data based on risk	Incidence data from all patients were included regardless of risk class
Chuankrekkul et al 2015	Abstract; with no mention of including only high-risk patients	Incidence data from all patients were included regardless of risk class
NCT0250049 2016	Incomplete RCT; no mention of including only high-risk patients	Incidence data from all patients were included regardless of risk class
Rosa et al 2016	Abstract; no mention of including only high-risk patients	Incidence data from all patients were included regardless of risk class
Choi et al 2016	Separate data available which were included appropriately	
Chang et al 2016	Abstract; no mention of including only high-risk patients	Incidence data from all patients were included regardless of risk class
Mok et al 2017	Only high-risk patients included	Incidence data from moderate-severe pancreatitis used instead of total numbers

PEP, post-endoscopic retrograde cholangiopancreatography pancreatitis; RCT, randomized controlled trial

▶ **Table 2** Issues with studies of rectal NSAIDS for PEP prevention included in the network as high risk.

Study	Availability of PEP incidence data from high-risk patients in original studies	Issues with current network-analysis
Murray et al 2003	Only high-risk patients included	Numbers included in current network metanalysis are inaccurate
Sotoudehmanesh et al 2007	No separate incidence data based on risk	Incidence data from moderate-severe pancreatitis used instead
Otsuka et al 2012	No separate incidence data based on risk	Incidence data from moderate-severe pancreatitis used instead
Elmunzer et al 2012	Only high-risk patients included	Incidence data from moderate-severe pancreatitis used instead of total numbers
Doborante et al 2012	No separate incidence data based on risk	Incidence data from moderate-severe pancreatitis used instead
Alabd et al 2013	Abstract; not able to be accessed for review	
Doborante et al 2014	No separate incidence data based on risk	Incidence data from moderate-severe pancreatitis used instead
Andrade-Davilla et al 2015	Only high-risk patients included	Incidence data from only moderate-severe pancreatitis used instead of total numbers
Patai et al 2015	No separate incidence data based on risk	Incidence data from moderate-severe pancreatitis used instead
Lua et al 2015	Only high-risk patients included	Incidence data from only moderate-severe pancreatitis used instead of total numbers
Luo et al 2016	Study designs compare preprocedural diclofenac with post-procedural for average to high-risk patients	Numbers of moderate-severe pancreatitis in average-risk patients are taken (See **Table 3** of original study)
Levenick et al 2016	No separate incidence data based on risk	Incidence data from moderate-severe pancreatitis used instead
Ucar et al 2016	No separate incidence data based on risk	Incidence data from moderate-severe pancreatitis used instead

NSAID, nonsteroidal anti-inflammatory drug; PEP, post-endoscopic retrograde cholangiopancreatography pancreatitis

Competing interests

The authors declare that they have no conflict of interest.

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Devani Kalpit et al. Pancreatic stent is … Endoscopy International Open 2020; 08: E722–E723

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