**A network meta-analysis of techniques of surgical management of chronic pancreatitis: Impact on pain and quality of life.**

Chathura BB Ratnayake1, Sivesh K Kamarajah2 , John Windsor1, Jeremy French2, Steve White2, Sanjay Pandanaboyana1,2

*1Department of Surgery, Faculty of Medical and Health Sciences, University of Auckland, Auckland New Zealand*

*2Department of Hepatobiliary, Pancreatic and Transplant Surgery, Department of Surgery, Freeman Hospital, Newcastle upon Tyne, Tyne and Wear, UK*

**Address for Correspondence:**

Sanjay Pandanaboyana, MS, FRCS (Edin), MPhil  
HPB and Transplant Surgeon  
HPB and Transplant unit   
Freeman Hospital. Newcastle Upon Tyne, UK  
Email: Sanjay.pandanaboyana@nuth.nhs.uk

**ABSTRACT**

**Background**Several surgical surgical techniques are currently available for improving pain in patients with chronic pancreatitis. The best surgical technique to improve quality of life (QoL) and pain after surgery for chronic pancreatitis remains unknown.

**Methods**   
The Scopus, EMBASE, Medline and Cochrane databases were systematically searched observing PRISMA methodology to identify all randomised controlled trials (RCTs) comparing surgical techniques for chronic pancreatitis management. The primary outcomes were pain relief and QoL.

**Results**   
Four surgical techniques of chronic pancreatitis management were directly compared to in eight randomised controlled trials including 597 patients. The patients, recruited between 1984 and 2013, were predominantly male (79%, 474/597) with alcoholic chronic pancreatitis (85%, 382/452). Surgical techniques included; pancreatoduodenectomy (224, 38%), the Berne procedure (168, 28%), the Beger procedure (133, 22%), and the Frey’s procedure (72, 12%). The Frey’s procedure was consistently ranked the best technique with regards to improved postoperative QoL and lower rates of postoperative pancreatic fistula (94% and 75% respectively), while also ranking second in improvement of postoperative pain (28%). Similarly, the Frey’s procedure had the best balance between the two primary outcome measures when surface under cumulative ranking curve scores (SUCRA) were plotted for both QoL and postoperative pain relief.

**Conclusion**

The Frey’s procedure is associated with the best postoperative quality of life among all techniques of surgical management for chronic pancreatitis with durable pain relief. Further randomised controlled trials are needed to confirm and validate the findings from this network meta-analysis.

Figure 3. Clustered ranking plots for techniques of chronic pancreatitis management according to Quality of Life and pain relief rankings. The SUCRA score value of 1 indicates a 100% probability of ranking first and 0 indicating a 100% probability of ranking last. These are derived from the ranking for each outcome. *SUCRA* surface under cumulative ranking curve score; *PD* pancreaticoduodenectomy and *QoL* Quality of Life.