PICO™ had a significant impact on Surgical Site Complications (SSC) after spinal surgery, including dehiscence and surgical site infection

A retrospective chart review of 160 patients before or after the routine use of PICO single use Negative Pressure Wound Therapy (NPWT) system

Evidence
• Level 3 evidence
• Retrospective hospital record audit over 6 years
• PICO (for 3 days) implemented routinely from January 2012

Thoracolumbar fusion surgery performed by a single surgeon over 6 years
• January 2007 – January 2013
• 160 sequential adult patients
• 114 patients in standard care cohort and 46 patients in the PICO cohort

Wound dehiscence was significantly reduced by implementation of PICO compared to historic cohort
• PICO cohort 6.38%; standard care cohort 12.28%
  Statistically significant (p=0.02)
• Median time to wound dehiscence: PICO cohort 40 days; standard care cohort 14 days
  Not statistically significant (p=0.07)

Surgical site infections (SSI) were significantly reduced by implementation of PICO compared to historic cohort
• PICO cohort 10.63%; standard care cohort 14.91%
  Statistically significant (p=0.04)

S.M.A.*

COMMENTS:

Long-segment (multi-level >4 vertebra) thoracolumbar fusion (with pedicle screw and rods) is spinal surgery to correct a deformity. The study was performed at Duke University Medical Centre, North Carolina, USA. SSC rate for spinal surgery ranges from 2% for simple procedures to 15% for large deformity surgery such as this described in this study. Obesity is an additional risk factor for SSC and 31% of this study population had BMI>30.

Although the paper does not name PICO specifically the description of NPWT utilised in the study suggests only PICO:
• small portable pump and dressing
• -80mmHg
• draws wound fluid into the dressing

This retrospective case-control cohort study shows that introduction of single-use NPWT significantly reduced surgical site complications (SSI and dehiscence).

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Title: Negative Pressure Wound Therapy reduces incidence of post-operative wound infection and dehiscence after long-segment thoracolumbar spinal fusion: a single institutional experience

Aim of the study: To determine if routine use of NPWT in elective spinal surgery would results in fewer post-operative complications

Study Type: Retrospective case note review before and after routine use of PICO

Wound Type: Closed Surgical Incision

Speciality/Indication: Orthopaedic Surgery – Spinal Surgery

Products: PICO

Number of patients: 160 patients (PICO n=46; Standard Care n=114)


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