Repair of damaged central venous catheters

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Home parenteral nutrition

- Home parenteral nutrition:
  - Mainstay for patients with intestinal failure

- Threats to catheters:
  - Catheter sepsis
  - Occlusions of veins or catheters

- Damage of catheters
Damage to catheters

• How often damaged?
  • Per patient, 1 damaged catheter every 10 years

• Reasons for damage:
  • Natural wear of material
  • Rupture due to flushing occluded catheters
  • Sharp objects
  • Repeated clamping maneuvers
  • Frequently bending
Repair of damaged catheters

- Broken catheters may result in complications
- Repair prevents catheter removal
- Repair kits: how do they work?

Effective? Safe?
Retrospective study

- Adult intestinal failure patients
- Between 2006-2017
- All tunneled catheters (type: Hickman)
- Nijmegen, the Netherlands
Study outcomes

• **Effective?**
  • Extra catheter life (in days) after a repair

• **Safe?**
  • Number of blood sepsis 30 days after a repair versus 30 days before a repair

• **Prevention?**
  • Risk factors for catheter damage
Results

- 527 catheters
  - 477 undamaged catheters
  - 50 damaged catheters
    - 41 repaired catheters
      - 28 catheters with 1 repair
      - 9 catheters with 2 repairs
      - 4 catheters with 3 repairs
    - Total: 58 repairs
  - 3 repair failures
- 55 successful repairs
Effectiveness of catheter repair

Time ➔

Damaged catheters

452 days

Repaired

+ 502 days
Safety of catheter repair

30 days BEFORE

2x blood sepsis

58 repairs

30 days AFTER

2x blood sepsis
Prevention of catheter damage

• Risk factors for catheter damage:

A younger age of the patient

Having a catheter in the leg
Conclusions

• Catheter life doubles after repair
• Catheter repair is safe

• Risk factors for catheter damage are:
  • A younger age
  • Having a catheter in the leg

Take-home message:
If you have a damaged catheter, consider repairing it!
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