



The Suprapubic catheterisation using the Seldinger technique. Improving safety and reducing cost

Project overview

Suprapubic catheterisation is a very common urological procedure regularly performed under general anaesthetic in theatre. The catheter is inserted either blind or, by exception, using ultrasound-guided percutaneous trochar puncture. Suprapubic catheters are used in urinary retention, and after gynaecological and neurological surgical procedures. They are also an effective ongoing measure in patients with long-term continence problems, bladder outflow obstruction and neuropathic bladder. Benefits include a lower rate of urethral damage and decreased bacteria, but although the procedure is generally simple, complications can include bowel perforation and haemorrhage, which tend to be under-reported.

NTAC's project centred around the implementation of a new catheter insertion kit using the Seldinger technique - a well-established clinical procedure - to increase safety and reduce the number of insertions

performed under general anaesthetic. The Seldinger Suprapubic Catheter Kit consists of a long needle (16G), a guide wire, a trocar with an outer sheath and a choice of silicone catheters.

During the procedure the anaesthetised tract is created in the normal way, but the needle is left in the patient. A guide wire is then inserted through the needle into the bladder. Due to its flexible nature the guide wire curls upon the posterior wall, preventing the trocar from being pushed in too far. The needle can then be removed. The trocar is inserted in a controlled manner, helping to reduce user anxiety and ensuring it enters the bladder.

Change rationale

The project was undertaken to address the following perceived problems in the management of suprapubic catheterisation:

- patients were frequently undergoing general anaesthetic for suprapubic catheter insertion

A new protocol driven out-patient service to improve safety and reduce cost.



- patients were being admitted and utilising bed days for a procedure that could be carried out in a day case / out-patient setting
- patients presenting in Accident and Emergency with acute retention, who might be considered for suprapubic catheterisation, were receiving indwelling urethral catheters.

There were 3 main objectives for this project

1. Improve the quality and consistency of care provided for patients by the application of the new technique.
2. Reduce the number of general anaesthetics administered to an elderly patient group who frequently have complex medical conditions.
3. Reduce waiting times and improve access for patients.

Key benefits

- **Greater control and accuracy** in catheter placement.
- **Reduced risk** of trauma and tissue damage for the patient. Using this technique the catheter rarely needed to be inserted under general anaesthetic - reducing the associated risks in an elderly 'at risk' group of patients.
- **Greater confidence** in inserting the trocar into the bladder by using an 18G hypodermic needle and the security of a guidewire.

Project outcomes

The new technique facilitated the development of a new protocol-driven out-patient service for management of patients in urinary retention requiring suprapubic catheterisation.

This included:

- a new pathway for management of patients referred for suprapubic catheter assessment
- a new protocol for the insertion of suprapubic catheter predominantly in the out-patient setting
- provision of fast track direct access where appropriate to a nurse practitioner for primary care referring clinicians
- a reduction in number of in-patient suprapubic catheter procedures undertaken under general anaesthetic.

- **Improved insertion and removal** facilitated by use of a guidewire which guaranteed insertion of the trocar along the anaesthetised track.
- **Reduced costs and hospital stay** as the procedure rarely needed to be undertaken as an in-patient, under general anaesthetic or in an operating theatre - reducing overall hospital costs.
- **Reduced consultant time and enhanced out of hours services** as non-consultant grade clinical staff and suitably trained nurse practitioners were able to perform the procedure after training.

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