MAINTENANCE OF PERIPHERAL INTRAVENOUS CATHETERS

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ABSTRACT Randle, J., Clarke, M. (2007) Maintenance of peripheral intravenous catheters. Nursing Times; 103: 12, 30–31. Infection prevention and control measures rely on health professionals’ compliance with guidelines for the care of patients with intravenous catheters. At times practice may be inconsistent with guidelines. This article uses a reflective approach to a practice incident and examines the main issues relating to the care of cannulas, specifically discussing the evidence relating to the amount of time that peripheral cannulas should remain in place. This is a summary: the full paper and reference list can be accessed at nursingtimes.net.

As part of the local clinical governance strategy we audited a clinical area in a large teaching hospital in England. A component of this audit was the insertion and maintenance of peripheral intravenous catheters/cannulas (PICs). To critically examine current practice and compare it with the evidence base relating to PIC care, a reflective framework based on Gibb’s work (1988) was used. The audit was conducted on a ward specialising in the care of people with diabetes and its results were rated against the local trust’s standard.

To review current practice five patients with PICs in situ were randomly chosen and their care was audited. One of these patients with diabetes had three PICs in one forearm. Two of the sites showed signs of phlebitis. There was no documentation about when the PICs were inserted and why they remained in place. A nurse informed us that the PICs were inserted in the emergency department but did not know when this had occurred.

FEELINGS The issues specific to the patient’s care are not unique to this particular clinical setting. However, although this patient had been very ill and he had initially required intensive medical and nursing care, his recovery was progressing well and the PICs were no longer needed. We were particularly concerned about them remaining in place because people with diabetes are at a greater risk of phlebitis than the general population.

Evaluation The audit revealed a discrepancy between clinical practice and trust guidelines. Consequently, feedback was provided (both verbally and in writing) and arrangements for future meetings were made in order to develop and implement the action plan.

Analysis The longer PICs are in situ the greater the opportunity for micro-organisms to multiply as they offer an easy way for bacteria to spread into a patient’s tissues. The majority of studies indicate that it is best practice to change PICs every 72–96 hours.

When comparing practice with the evidence base previously identified, it seems that a discrepancy exists. However, other studies have indicated that in specific circumstances PICs can remain in situ without any adverse effects. For example, a Swiss study by Bregenzer et al (1998) found that cannula-related complications such as phlebitis did not increase during the six days from when a cannula was sited.

A more methodologically robust multicentre study involved a surveillance project of 37 centres in the UK, Ireland and Sweden (Curran et al, 2000). Data was collected from 2,934 PICs that had been in situ for more than 24 hours. Information included patient age and gender, location of centre, lumen size, duration and reason for use, whether a pump was used, where the solution was made up and the condition of the catheter on removal of the PIC – the amount of inflammation and the type and amount of discharge.

After analysis the results of the data were fed back to staff. Two weeks later the study and feedback procedure was repeated. Other relevant factors included PIC duration – there was a statistically significant increase in the phlebitis rate with each day of device use up to five days. After this the increase was not statistically significant.

In a non-experimental study in the US, Catney et al (2001) indicated that PICs can remain in situ for more than 72 hours if risk
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Reviewed. Curran et al (2000) suggested that showing signs of phlebitis should be removed every 72–96 hours and all aspects of PIC care should be appropriately documented. The INS (2000) suggested that research should be employed to increase nursing knowledge about infusion therapy. To achieve this, nurses should participate in relevant research.

Infection control personnel should understand the factors influencing compliance and how best this can best be achieved. To improve compliance with best practice, ongoing educational programmes and audit and benchmarking that reflect national standards should be implemented.

Factors are evaluated. They concluded that PICs could safely remain in situ but this would require careful consideration on an individual basis. This study was conducted with male surgical or medical patients taken from a convenience sample of 411 who were receiving IV fluids as part of their treatment. The risk factors identified substantiated earlier work by Maki and Ringer (1991) and include the type of administered medication, the status of the patient in terms of alertness and willingness to self-evaluate site for signs of phlebitis, and the absence of a dedicated IV team.

Although the studies of Curran et al (2000) and Catney et al (2001) seem to support the practice in our audit, their recommendations are for patients in specific circumstances. This does not include the patient in our scenario. From a review of the literature, it seems it is established that PICs should be removed every 72–96 hours (depending on the type of therapy) or sooner if complications are suspected.

However, the routine replacement of PICs that have been well cared for and are not showing signs of phlebitis should be reviewed. Curran et al (2000) suggested that the benefits of removal must outweigh the risks and discomfort of resiting. Reasons for extended dwell time include poor venous access, expected site discontinuation within 24 hours and/or the use of a saline lock.

Another difference between practice in our scenario and theory as guided by policy and evidence is the issue of documentation. Documentation should involve complete information regarding infusion therapy and vascular access (ICNA, 2000; INS, 2000). It should therefore comply with the guidelines for records and record-keeping and specifically identify information regarding the type, length and gauge of vascular access device product, including its name, batch and lot number.

Additional documentation should include: date and time of insertion; number and location of attempts; identification of the site, type of dressing, patient’s tolerance of the insertion and the name of the person placing the device. All these should be documented in the patient’s nursing and medical notes (INS, 2000). All aspects of IV therapy should be documented according to local policy and procedures and should include, where possible, a record of the patient’s consent, which is a general legal and ethical principle (DH, 2001).

To remedy shortfalls in practice relating to infection control measures, practice should be firmly based on the best evidence of fectiveness. To ensure this, experimental scientifically robust studies need to be conducted. RCN (2005) recommendations relating to the scenario are graded according to level three, which is based on clinical experience and anecdote. This is not to be dismissive of the studies on which the RCN guidelines are based as all standards have been reviewed by clinical experts before publication, however, it should be recognised that the recommendations from this report are not scientifically robust.