IV therapy and the care of vascular access devices – a national and international perspective

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A Practical Guide to Advancing IV Therapy
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All hospitals need IV therapy lead to reduce incidents advises NICE*

“Traditionally, doctors prescribe, nurses administer and pharmacists dispense but no one takes responsibility for the quality of IV therapy”

Katie Scales, Consultant Nurse Critical Care Imperial College Healthcare NHS Trust and NICE quality standard adviser

*Round up of the week’s events Nursing Standard August 20 2014, vol 28:51p.10
Vascular Access
• Tip location
• Advanced securement
• Technology aids to peripheral cannulation
Innovations

Tip location

Single technology

- Tracking – magnetic
- Positioning – ECG
Innovations

Tip location

Combination technology

• Positioning – Magnetic and ECG

• Positioning – ECG and Doppler ultrasound
Pros

• Real time tip confirmation – time saving
• Reduced radiation exposure
• Cost effective after a period of time

Cons

• Set up cost
• Not suitable for all patients
• Some machines will only work with single brand product
• Confidence in results

Evaluation of an electrocardiograph based PICC tip verification system
Gemma Oliver, Matt Jones British Journal of Nursing, Vol. 22, Iss. 14 Supplement, 24 Jul 2013, pp S24 - S28
Peripheral cannulas  
PICCs  
Both
Innovations

Technology aids to peripheral cannulation

Infrared
Innovations

Technology aids to peripheral cannulation

Ultrasound
• Strategies to tackle Catheter related blood stream infections (CRBSIs)
• Alternative access
• A standardised approach to device selection
• Community IV therapy – new ways of delivering
Strategies to tackle CRBSIs

— **Epic 3 MSBPs**  "MSB precautions involve wearing sterile gloves and gown, cap and mask, and using a full-body sterile drape during insertion of the catheter"

— **Barriers**

— **Topical antisepsis**

NICE medical technology guidance [MTG25]
Published date: July 2015
Alternative access

- Integrated all-in-one placement device
  - ANTT
  - Power injectable
  - Blood sampling
Alternative access

- Tunnelled PICCs
- Intraosseous
Alternative access

- Arm/PICC ports
A standardised approach to device selection

The Vessel Health and Preservation (VHP) protocol

- Evidence based, expert consensus protocol for intentional placement of venous access devices
- Prescriptive and Comprehensive
- Device selection tools
- Daily reassessment and surveillance tools
- Educational package to support implementation
Developments

Right Line Decision Tool

- Genuine need for IV Therapy?
  - YES
  - MUST therapy be administered centrally? (Refer to examples Drugs List)
    - NO
    - PERIPHERAL VEIN Assessment grade
      - 1: Outpatient/Long Term/Inpatient/Acute
        - 6 months Intermittent Therapy
        - Less than 10 days therapy
      - 2: <4 months Intermittent Therapy
      - 3: Ok for 4-6 wks Intermittent Therapy
      - 4: One off Cannulation
      - 5: Not suitable for cannulation
  - NO
  - Continue via alternative route
    - Consider: Oral, sublingual, inhaled, subcutaneous, nasal,

- NO
  - If Peripheral Vein grade not compatible with intended treatment duration, consider other type of vascular device
    - Duration of anticipated therapy?
      - < 10 days³
        - Non-tunnelled CVC / PICC or Midline⁴
      - >10 days – < 4 weeks³
        - PICC / Midline⁴
      - >4 weeks - < 6 months³
        - PICC / Tunnelled CVC or TIVAD
      - Months/Years³
        - Tunnelled CVC/TIVAD
Daily surveillance form

Does the patient still need IV therapy?

- **YES**
  - Does the current Vascular Access Device (VAD) still provide the optimum solution to the patient's needs?
    - Evaluate the following:
      - Insertion site score > 0
      - Device infected: Suspected?
        - Yes
        - No
      - Proven?
        - Yes
        - No
      - Occlusion? (including persistent)
        - Yes
        - No
      - Thrombosis
        - Yes
        - No
      - Leakage?
        - Yes
        - No
      - Missed/delayed doses (due to device failure)
        - Yes
        - No
      - Dislodgement
        - Yes
        - No
    - Use local score e.g. VIP/CAT score

- **NO**
  - Arrange removal IV access and continue treatment via alternative routes as appropriate

- **NO to all**
  - Has any new clinical information evolved which might affect the choice of right line for this patient?
  - Is a suspected diagnosis confirmed?
  - Has their condition changed?
  - **YES**
    - Refer to local policies on management of VAD-related complications, but consider whether potential complications implies failure of the VAD and re-evaluate for escalation to an alternative type of VAD
    - Reapply VHP Right Line Decision Tool to re-evaluate current need for VAD incorporating patient views
  - **NO**
    - Continue to use current VAD according to local policy. Continue surveillance for complications and continue to re-evaluate the on-going need for this VAD regularly.
Developments

Elastomeric devices

- Tazocin
- Flucloxacillin
- Caftazidime

Meropenem
Vancomycin
New focus on peripheral cannulation

• Routine versus clinically indicated replacement of peripherally inserted catheters: a randomised controlled equivalence trial. Rickard et al 2012 The Lancet, 380, 1066-1074

• Infusion phlebitis assessment measures: a systematic review Ray-Barruel, G et al 2014 Journal of Evaluation in Clinical Practice
Study aims

• To identify the prevalence of PIVCs in hospital populations worldwide

• To evaluate prevalence of PIVC complications (phlebitis, occlusion, extravasation etc.)

• To benchmark PIVC characteristics (catheter size, type, anatomical placement, types of IV fluids/medications used etc.)

• To identify prevalence of redundant PIVCs

• To identify practices in PIVC securement

• To compare organisational policies on PIVC insertion and management across the globe