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Vessel Health & Preservation UK Framework

Relevance to OPAT services

OPAT conference Birmingham
December 2016

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Overview

- What is the concept of VHP?
- Why is it relevant to Vascular Access Services?
- Work so far
- Relevance to OPAT

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What is Vessel Health & Preservation

- Realisation that vascular access is often delegated to less experienced staff
- Default solution for a given patient is often the least invasive
- Poor understanding of impact of particular therapies on vessel health

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Drivers for change

- Patient experience
- Effective care (missed doses!)
- Reduced complications
- Potentially cost savings

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Solutions?

- A rational framework to guide optimum vascular access solutions, considering:
  - Nature of IV therapy
  - Duration of IV therapy
  - Vein health of patient
  - Other specific patient factors
- Ensuring the **RIGHT PATIENT RECEIVES THE RIGHT LINE IN THE RIGHT TIME**

UK VESSEL HEALTH AND PRESERVATION

START HERE

FIRST CONSIDERATION

IS IV THERAPY REQUIRED?

HAVE ALTERNATIVE ROUTES BEEN CONSIDERED AND EXCLUDED?

NO! → CONTINUE TREATMENT VIA ALTERNATIVE ROUTE*

YES! → SEE DECISION TOOL

INTRODUCTION

The guidance behind Vessel Health & Preservation (VHP) concept of vascular access management was introduced to the UK. The essence of VHP is timely, intentional, proactive patient intervention for vascular access device selection during the first 24 hours of care into the healthcare process (and re-evaluated if/when), followed by placement of a clinically appropriate device within set hours. Once placed, the focus shifts to daily maintenance and care of the device during the planned dwell time and daily assessment to determine the health of patient's blood vessels around as continued necessity of the device (Moureau, et al, 2013).

This practical framework has been developed to support practitioners in undertaking vessel assessment and make decisions regarding suitable devices for vascular access and administration of medication or fluids. This is based on individual patient need and not this assessment. The framework is divided into relevant sections recognising the different stages of vascular assessment and therapy and is intended to be used either in its entirety or individual sections.

Preservation of vessels is required to minimise damage (thrombosis, stenosis and infection) and maintain the patency of the peripheral and central veins for as long as possible. This maximises good venous access for future treatments and minimises patient suffering. Further such actions have the potential to save significant staff and equipment costs in organisations providing vascular access and administration of medication or fluids.

This guidance relates to adult vascular access in acute or planned settings. It is not planned for use in emergency situations where other issues take priority and other routes of access may be appropriate e.g. intraosseous infusions.

GLOSSARY OF TERMS

PICC - Peripherally inserted central venous catheter

Midline - Long venous catheter inserted into arm with tip which does not extend centrally

Tunnelled CVC - central venous catheter which is tunnelled away from exit site and has an anchoring cuff (e.g. Hickman type catheter)

CVC - Central venous catheter

TIVAD - Total implanted vascular access device (port)

VAD - Vascular access device

IV - Intravenous route of access

VIP - Visual Infusion Phlebitis Score (Jackson, 2007)

VHP - Vessel health and preservation

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RIGHT LINE DECISION TOOL

	1	2	3	4	5
Duration / Long Term	<6 months Intermittent Therapy	>6 months Intermittent Therapy	>6 hr to <24 hrs Intermittent Therapy	Once off Cannulation	Not suitable for cannulation
Inpatient / Acute	Less than Continuous Therapy			Once off Cannulation	

VESSEL ASSESSMENT

GRADE	VEIN QUALITY	DEFINITION OF VEIN QUALITY	INSERTION MANAGEMENT
1	Excellent	All palpated veins visible or palpable	Cannula may be inserted by trained advanced healthcare practitioner
2	Good	All palpated veins visible or palpable	Cannula may be inserted by trained advanced healthcare practitioner
3	Fair	All palpated veins visible or palpable. Some tortuosity evident, scarring or difficult to find and require manipulation or an assessment	Cannula may be inserted by trained advanced healthcare practitioner but may require infusion trained or Ultrasound
4	Poor	Veins not palpated visible (requires skin stand assistance or Infrared device)	Cannula may be inserted by an experienced practitioner in Cannulation (for infusion trained, Ultrasound, transilluminator or other aids
5	Very poor/none	No veins (vessel size or veins or palpable veins	Peripheral cannulation should not be performed

SUITABILITY OF DRUGS

Suitability of drugs for peripheral infusion is potentially complex and requires risk assessment for the individual drug and route of access with each treatment. In broad terms the safety of a drug infusion is relevant damage to the blood cell issues in factors like pH, osmolarity, viscosity, volume of infusion, speed of infusion, the size and fragility of the peripheral vein. Guideline guidance should be available locally in all clinical settings. Examples include injectable medicines guide (Medicines) http://medicines.nelcsu.nhs.uk/iv-to-oral-route.asp

Guidelines suggest peripheral injections and medicines are unsuitable for the following:

Continuous intravenous chemotherapy

- Parenteral nutrition exceeding 10 per cent dextrose and/or 5 per cent protein
- Solutions and/or medications with pH less than 5 or greater than 9
- Solutions and/or medications with osmolarity greater than 600mOsm/l

(Royal College of Nursing (Standards of Infusion therapy 2010)

EXAMPLE OF A DRUGS LIST

DEFINITELY CENTRAL	CONSIDER CENTRAL
Amiodarone (except emergency intermittent period)	Vancomycin (especially when more than 2gm per 24 hours)
Carmustine (Hexamethylene drugs	Labetalol
Dacarbazine	Magnesium
Dopamine	Caffeine
Epirubicine (Administration should be done more than 4 hrs after an interval period)	ACTH
Fluorouracil (Hexamethylene)	Chlorpromazine
Potassium >40mmol/litre	Diazepam
Vinca alkaloids (only in the College of Nursing)	Phenytoin/sodium
Dopamine	Frusemide
Glucose >10%	Nitroglycerin
Amiodipine	Phenytoin
Sodium Bicarbonate 4.2% or 8.4%	Clarithromycin
Sodium Chloride 3% +	Ketamine

RE-EVALUATION OF ACCESS DEVICE

Daily assessment is required to ensure the device is appropriate, preserving vessel health and comfort for the patient. The assessment should consider any complications and whether the device is still required. In addition, observation of the vascular access device insertion site should be performed each shift.

SECONDARY QUESTIONS WHICH MAY EFFECT LINE CHOICE IN INDIVIDUAL PATIENTS:

Patient preference / Lifestyle issues / Body image

Known abnormalities of vascular anatomy which limit access site

Therapy questions eg intermittent vs continuous infusions of patient, extreme duration of therapy (months plus) opposite indications (eg bone marrow transplant)

Local availability of vascular competency

Need for long term diagnosis with - Alz Nikola, avoid vein damage from PICC or Axillary / Subclavian catheters. Research Point: coagulopathy, severe respiratory dysfunction and other contraindications to central access. Patient factors: cognitive function

AREA FOR SUPPORT / LOGOS

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Key VHP considerations

- Is IV therapy definitely indicated?
- Is the drug appropriate for peripheral administration, or should it be delivered into central vein?
- What is the health of the patient's veins?
- For how long is the treatment proposed?

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Relevance to OPAT

- Drugs drive the service
- Already much rationale to support OPAT administration of therapy
- Devices?
- Rational vein assessment?
- Liaison with inpatient services (depending on model of OPAT care)

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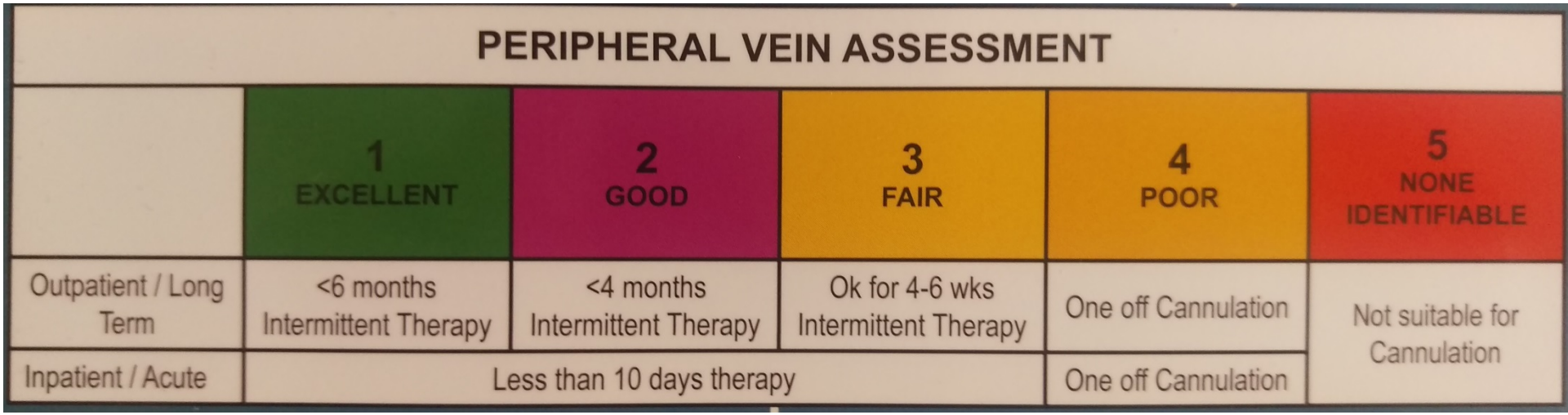
Vein assessment



PERIPHERAL VEIN ASSESSMENT					
	1 EXCELLENT	2 GOOD	3 FAIR	4 POOR	5 NONE IDENTIFIABLE
Outpatient / Long Term	<6 months Intermittent Therapy	<4 months Intermittent Therapy	Ok for 4-6 wks Intermittent Therapy	One off Cannulation	Not suitable for Cannulation
Inpatient / Acute	Less than 10 days therapy			One off Cannulation	

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- Refers to peripheral cannulations
- Incorporates:
  - Expertise
  - Vein imaging tech.
  - Consider NOT cannula

PERIPHERAL VEIN ASSESSMENT			
GRADE	VEIN QUALITY	DEFINITION IF VEIN QUALITY	INSERTION MANAGEMENT[2]
1	Excellent	4-5 palpable/ easily visible veins suitable to cannulate	Cannula may be inserted by trained/ authorised health care practitioner
2	Good	2-3 palpable/visible veins suitable to cannulate	Cannula may be inserted by trained/ authorised health care practitioner
3	Fair	1-2 palpable/visible veins suitable to cannulate. (Veins maybe small, scarred or difficult to find and require heat packs to aid vasodilation)	Cannula may be inserted by trained/ authorised health care practitioner but may require Infrared Viewer or Ultrasound
4	Poor	Veins not palpated/ visible (requires ultra sound assistance or Infrared Viewer)	Cannula may be inserted by an experienced practitioner [3] in Cannulation. Use Infrared Viewer, Ultrasound, transillumination or other aids
5	None identifiable	No visible (naked eye or aids) or palpable veins.	Peripheral cannulation should not be performed

Antibiotics!

- Drug choices based on physical characteristics
- In textbook terms, surprisingly extensive list of drugs which “should” be administered centrally!
  - Not pragmatic
  - Doesn’t take into account dilution etc

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If we adhere to textbooks….

- Penicillins
- Co-amoxiclav
- Cephalosporins
- Vancomycin
  - Morphine
  - Anti-emetics

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Devices of relevance to OPAT

- Peripheral IV cannulae
- **Midlines**
- PICC lines
- Tunnelled CVADs & totally implanted ports

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Any Questions

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In summary…….

- VHP offers a rational approach to proactively decide the optimum vascular access decisions in OPAT patients
- Is it applicable to you? Can you adapt it to what you currently do?
- **Right Line, Right Patient, Right Time!!**
- **Every choice matters**

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Thank you & goodnight!

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