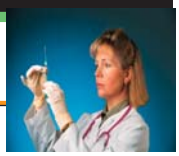
PREFERRED PHARMACY SOLUTIONS

Infusion Connection

Volume 2
Issue 1
2011



Intravenous Medications

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Your patient needs intravenous medications; what device does she need, what medication will she need and for how long?

This newsletter will address choosing the right device for the right medication.

Older adults receive more intravenous therapy (IV therapy) than any other age group; some common reasons for IV therapy include treatment of infections, cancer, and fluid and electrolyte imbalance.

Nursing competencies before initiating intravenous therapy:

* Comfortable/confident in finding and accessing appropriate vascular access routes in older adults
* Aware of the physiologic, sensory and cognitive differences in older adults
* Knowledge of the pH of the drug, osmolarity of the infusion, the duration of the ordered therapy, and the appropriated vascular access device.
* Knowledgeable of the INS Standards of Practice.

Let's begin with the INS Standards of Practice.

Standard #3.1 the nurse providing infusion therapy for the older adult shall have clinical knowledge and technical expertise with respect to this population.

Standard #3.2 clinical management of older adults shall be established in organizational policies…and applicable to standards of practice

Standard #32.3. The catheter selected shall be of the smallest gauge and length with fewest numbers of lumens and shall be the least invasive device needed to accommodate the prescribed therapy.

* Practice Criteria D.
    * Therapies NOT appropriate for peripheral catheters include continuous vesicant therapy, parenteral nutrition a final dextrose concentration above 10 % mOsm/L, , infusate with pH less than <5 and greater than > 9 or osmolarity greater than 600,

Vascular Access Device Selection duration guidelines:

1. Peripheral IV catheter (maximum dwell time 72-96 hours) VERY short term use.
2. Midline Catheter (dwell time @ 4 weeks) useful for non-irritating* drugs and short term therapy less than one month.
3. Central (tip in SVC or CAJ)
    * PICC (dwell time @ 1 year)
    * Tunneled VAD (dwell indefinite, needs daily or frequent use)
    * Implanted Ports (intermittent but long term use)

2011 CDC Updates for Prevention of IV Catheter Infection:

* For peripheral and midline catheters, an upper extremity is preferred in adults
* Steel needles should be avoided when administering fluids and medications that might cause tissue necrosis if extravasations occurs
* When duration of intravascular therapy is likely to be more than 6 days a midline or PICC is preferred to short peripheral catheters
* The catheter insertion site should be evaluated daily, and peripheral venous catheters should be removed if signs of phlebitis develop
* Risks and Benefits of a central venous device to reduce infectious complications should be weighed against the risk of mechanical complications

Complete document on CDC website

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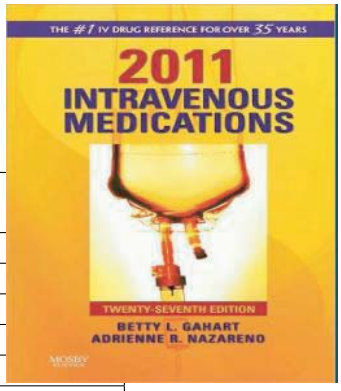
How do I find the pH of a drug?



* IRRITATING to veins- pH <5 or >9 or osmolarity >500 mOsm

EXAMPLES OF COMMONLY PRESCRIBED DRUGS	pH range/ Gahart
Penicillin's	5.5-9
Amphotericin	5.7-8
Bactrim	10
Cipro	3.9-4.6
Dobutamine	2.5-5.5
Doxycycline	1.8-3.3
Furosemide	8-9.3
Erythromycin	6.5-7.7
Nafficillin	6-8.5
Phenergan	4-5.5
Phenytoin	12
Potassium (depends on dilution)	4-8
Rocephin (depends on dilution)	6.6-6.7
Tobramycin	3-6.5
Vancomycin	2.4-4.5
TPN	1800-200 mOsm

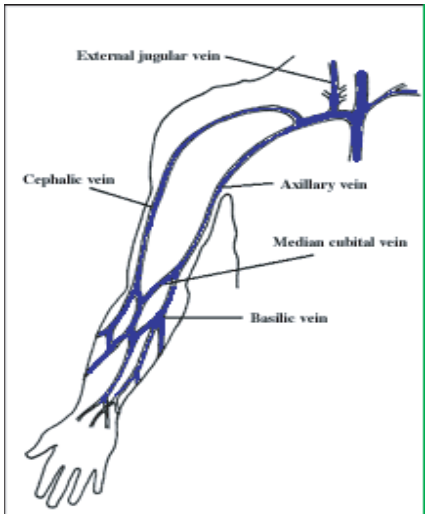
What are the physiologic, sensory and cognitive differences in older adults?

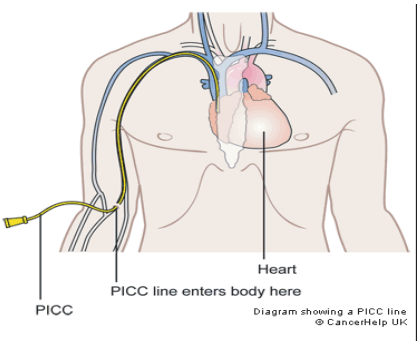
Physiologic changes include loss of muscle mass and venous sclerosis, this can make venous access challenging. Suggested strategies:

* Good skin traction to prevent rolling or movement of the vein.
* Light or no tourniquet may sometimes be helpful as a tight tourniquet can cause increase in pressure within the vessel and the cannula puncture can cause rupture of the vessel and bleeding into the subcutaneous tissue.
* Avoid dorsum of the hands; these are fragile and often challenging to access successfully.
* Select the most distal site for peripheral catheter placement

Cognitive abilities and dexterity, communication methods, including vision and hearing and verbal changes must be considered as well as safety and environmental considerations. Suggested strategies:

* Informed consent for the intervention
* Catheter securement
* Vein selection
* Clinical assessment to prevent injuries which include fluid volume over load, bleeding, infection, infiltration.
* Peripheral veins and Central veins





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Let's consider some patient scenarios.

1. Mrs. Sludge is manifesting symptoms of a UTI, her provider orders Ciprofloxacin for 2 weeks. Based on the above information what venous access device would you recommend?

2. Mr. Bone has been diagnosed with osteomyelitis and has been prescribed Vancomycin for 6 weeks what venous access device would you recommend?

3. Mrs. Foot has cellulites and needs 6 days of Cefazolin what venous access device would you recommend?

4. Mrs. Kidney has not been eating her provider wants to try 1 liter of normal saline for 24 hours what venous access device would you recommend?

5. Veins of the lower extremities should be considered first for the older adult?
a. True
b. False

6. Skin traction is one strategy for accessing veins of the older adult?
a. True
b. False

7. The tighter the tourniquet the better for older adults vein distention?
a. True
b. False

8. Cognitive deficits may lead to consent for IV insertion but memory loss may result in the line being pulled out by a confused patient. What strategy would you employ to prevent accidental removal of the IV cannula?

9. IV fluids are a potential risk for fluid volume_____.

10. Bleeding into the subcutaneous tissue can cause what local complication?
a. Phlebitis
b. Thrombus
c. Infection
d. Hematoma

Responses

1. Mrs. Sludge is manifesting symptoms of a UTI, her provider orders Ciprofloxacin for 2 weeks. Based on the above information what venous access device would you recommend?
PICC because of duration and pH

2. Mr. Bone has been diagnosed with osteomyelitis and has been prescribed Vancomycin for 6 weeks what venous access device would you recommend?
PICC because of duration and pH

3. Mrs. Foot has cellulites and needs 6 days of Cefazolin what venous access device would you recommend?.
Midline because of short duration and pH

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4. Mrs. Kidney has not been eating her provider wants to try 1 liter of normal saline for 24 hours what venous access device would you recommend?
Peripheral because of duration

5. Veins of the lower extremities should be considered first for the older adult?
False . It is upper extremities that is preferred

6. Skin traction is one strategy for accessing veins of the older adult?
True . Helps to stabilized and prevent rolling due to tissue loss

7. The tighter the tourniquet the better for older adults vein distention?
False. Light or no tourniquet may sometimes be helpful as a tight tourniquet can cause increase in pressure within the vessel and the cannula puncture can cause rupture of the vessel and bleeding into the subcutaneous tissue

8. Cognitive deficits may lead to consent for IV insertion but memory loss may result in the line being pulled out by a confused patient. What strategy would you employ to prevent accidental removal of the IV cannula?
Catheter securement, restraint, mitts etc

9. IV fluids are a potential risk for fluid volume_____.
overload

10. Bleeding into the subcutaneous tissue can cause what local complication?
d. Hematoma

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