Intraosseous Access
The “Non-Collapsible Vein”
Debra Turk, RN, BSN, CRNI
Vascular Access Nurses, UPMC Hamot

Introduction
The Vascular Access Nurses at UPMC Hamot are responsible for providing intravenous access to many patients. An increasing number of patients have very limited venous access. In urgent situations, it may be time consuming to obtain adequate access for IV medications or fluids. In non-urgent situations, several Vascular Access Nurses may make multiple attempts using various modalities to gain IV access; this can be painful for the patient, time consuming and provide inadequate routes for some medications or fluids.

Purpose
In an emergency, time is critical. Medications are most effective in these situations when given as soon as needed. The American Heart Association recommends the intraosseous route as the preferred alternative when IV access cannot be quickly obtained (AHA, 2010).

Despite the use of ultrasound and vein-finding devices, there are times that adequate intravenous access cannot be obtained. The Infusion Nurses Society recognizes intraosseous access as a viable alternative to IV access in emergent and nonemergent situations (Phillips, 2010).

Methods
The Vascular Access Nurses at UPMC Hamot were recently trained to insert intraosseous needles with the EZ-IO power driver. A policy was created and approved. The IO route is another option available to the Vascular Access Nurses in urgent situations, or when other attempts at venous access have failed. The IO route functions as a “non-collapsible vein.”

Outcome
Data will be collected monthly regarding IO insertion, use, length of time maintained, and any complications encountered. This will be analyzed to ensure proper use of the IO route. An IO needle may only be left in place for 24 hours; alternate access or another IO in a different site will be needed if the patient continues to need IV access.

Advantages
- Rapid, reliable access - 95% success rate
- Alternative to emergent central lines
- Humeral head IO insertion provides access into the central circulation that is the equivalent to central lines (Paxton, 2009).
- Use as a bridge to alternate access
- May be able to obtain lab specimens

Contraindications
- Infection at site
- Previous IO at site within 48 hours
- Obvious fracture of affected bone
- Previous surgery at the site

Complications (<1%)
- Infection
- Compartment Syndrome (no reported cases when placed in the humeral head)
- Infiltration/Extravasation (adequate needle length is essential to prevention)
- As of November 2013 EZ-IO had been used over 2 million times with only ONE reported case of osteomyelitis.

Pain Control
In the alert patient, pain must be addressed. The IO insertion causes mild pain (rated 3) but the initial flush can be painful. Lidocaine 2% can be slowly infused over two minutes and left to dwell for one minute prior to the initial flush. It is absorbed into the medullary space to provide an anesthetic effect. This may need to be repeated within accepted parameters. (Philbeck, 2010)

References
http://www.vidacare.com/EZ-IO/Index.aspx

Disclosure
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