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Paediatric Intravenous and Intraosseous Access

Practical 08 / Skills laboratory simulation

Aim

Demonstrate preparation, team checks and the approved access sequence on child task trainers.

Principle

Access choice depends on urgency, anatomy, prior attempts and clinical indication. Intraosseous access can provide emergency access when suitable intravenous access cannot be secured promptly.

Materials and Requirements

- Child IV arm and intraosseous trainer, dummy cannulas and approved insertion trainer
- Aseptic setup, dressing, sharps bin and skills checklist

Procedure

1. Confirm the case indication, estimated or measured weight and time sensitivity. Check allergies and obtain instructor approval for route and site.
2. Confirm emergency access need, sites already attempted and how much time the case allows. Arrange the instructor-confirmed team roles and read back the device and route choice.
3. Set up aseptically, identify eligible sites on the models and state contraindications relevant to the selected route.
4. Place approved supplies, labels and sharps container within reach. Check trainer site, anticipated contraindications and aseptic field before handling key parts.

Continue with step 5 on the next page.

Procedure Continued

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5. Demonstrate the IV sequence on the arm model and check securement and patency using simulator feedback.
6. On the arm trainer demonstrate support and site preparation, then follow the taught access checklist. Verify the expected model feedback, apply the dressing and label time and site.
7. Explain when to escalate IV attempts and demonstrate the intraosseous procedure using the approved trainer checklist and its feedback. Report simulated swelling or resistance.
8. Review why an alternative route is needed and use the intraosseous trainer's safety sequence. Confirm placement checks on the model and state what resistance, swelling or other concern stops simulated use.
9. Dispose of sharps, label and document route, site, time, attempts and planned monitoring.
10. Demonstrate monitoring and handover, including attempts, route, signs of infiltration, device security and planned review. Keep the procedure on the supplied trainers.

Precautions

- Practise invasive skills on approved trainers with the instructor checking each sequence.
- Use proper sharps disposal and immediate communication of failed access.

Observations and Interpretation

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Observations and Record

Item	What to record	What it tells you
Choice	Indication, route and alternative sites	Explains the decision
Model feedback	Patency, resistance and surrounding swelling	Flags possible malposition or infiltration
Record	Route, site, time and current status	Supports safe continued use

Worked Example

The first trainer IV flush produces simulated swelling. The student stops and reports suspected infiltration. In the worsening shock scenario the team prepares trainer IO access.

Result and Interpretation

Swelling alerts the team to a failed IV. Follow the emergency access pathway and verify the replacement route before use.

Viva Questions and Answers

When is intraosseous access considered?

In a time-critical emergency when appropriate IV access is unavailable or delayed.

What are two signs of possible infiltration?

Swelling around the site and increased resistance during approved patency checks.

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