Background:
- IV catheters are routinely flushed with saline to maintain IV patency, which is standard of care practice.
- Some patients have experienced a taste and/or smell when their IV catheter is flushed with saline.
- IV catheters are flushed with saline from a commercially prefilled syringe and/or saline from a multi-dose vial or bag depending on unit policy/procedure and/or nurse preference.
- Commercially Prefilled Saline Syringes
  - Advantages:
    - Allows nurses to be more efficient in their workflow.
    - Decreased medication errors.
    - Decreased risk of infection.
  - Disadvantages:
    - Can cause the patient to experience a taste and/or smell when their IV is flushed.
    - Some reports of infectious outbreaks have been reported due to poor manufacturing practices.
- Manufacturing Practices
- Multi-dose Bags or Vials of Saline
  - Advantages:
    - Cost effective.
    - Patients are less likely to experience a taste and/or smell when their IV is flushed.
  - Disadvantages:
    - Increased risk of infection.

Hypothesis:
Prefilled saline syringes will cause the patient to experience a taste and/or smell when their IV catheter is flushed with saline.

Methods:
- Design: randomized, double blinded crossover study.
- 49 participants were given three 10 ml injections of saline from a commercially prefilled syringe and saline from a multi-dose bag.
- Each injection was separated by 30 minutes and given over 15 seconds.
- Each participant received saline from both the commercially prefilled syringe and multi-dose bag.
- At the completion of each flush the participants were given a questionnaire to evaluate their experience.
  - Participants were asked to choose which injection they preferred.

Results:
- 7.3 times more likely to experience a taste with the prefilled syringe when compared with the multi-dose bag (p<0.001, McNemar's Chi-squared test).
- 10.4 times more likely to experience a smell with the prefilled syringe when compared with the multi-dose bag (p<0.001, McNemar's Chi-squared test).
- 38 of the participants (77.6%) preferred the multi-dose bag of saline when compared with the prefilled syringe (p=0.001, McNemar's Chi-squared test).

Conclusion:
Prefilled saline syringes cause the patient to experience a taste and/or smell after their IV catheter is flushed with saline.

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