Difficult Intravenous Starts Using Ultrasound Guided Technique

Nicole Evaro, RN, BSN, CEN

BACKGROUND
- The ability to place an IV line in a timely and effective manner is crucial: affecting patient safety, decreasing the time the patient spends in the department, and significantly improving patient satisfaction.
- 25% to 33% of emergency patients have poor vasculature and/or other factors which may impede IV access.
- Ultrasound assists in identifying appropriate vessels and insertion sites for those with poor vasculature/risk for difficult IV access.
- Ultrasound guidance techniques can be taught to nurses.
- The Difficult IV Access (DIVA) tool is a predictive tool assisting nurses to identify patients with difficult vasculature by assigning a numerical value based on specific characteristics.

PURPOSE
- The overarching purpose of this study was to achieve timely IV access in emergency patients with a minimal number of attempts.
- Sub aims included:
  • Testing the efficacy of the DIVA tool to identify emergency patients that are predicted to have poor vasculature or be a difficult IV start
  • Increasing the number of Emergency Care Center (ECC) RNs who are trained in using ultrasound to guide IV starts.

REFERENCES
Available on request: Nicole.Evaro@stjoe.org

METHODS
- Design: Evidence-based practice
- Participants: ECC RNs
- Setting: ECC at St. Joseph Hospital, Orange
- Intervention:
  • 4-hour didactic and experiential training course provided to 20 ECC RNs.
  • RNs were trained to use the DIVA tool to identify patients with difficult vasculature.
  • Data for the project was generated by nurses who completed an ultrasound guided IV to complete the DIVA tool.

LIMITATIONS
- No completed DIVA tools available for analysis; data obtained from chart audits.

RESULTS
Data Collection: June 2019 to May 2020
- 345 ultrasound guided IVs were started.
- The average number of IV attempts with ultrasound was 1.25 per patient.
- 88.7% ultrasound guided IV attempts were successful with the first attempt.
- Most common indications for ultrasound IV start:
  • Known history of difficult vasculature
  • Limited to using only one arm
  • Intravenous drug use history

FURTHER STUDY
- Continue to collect data regarding the number of ultrasound IV starts performed.
- Identify actual number of IV attempts per patient with and without IV ultrasound to determine the impact of ultrasound on IV starts.
- Redeploy the DIVA tool and use results to determine correlations between criteria indicating difficulty and number of attempts to successfully start an IV.
- Consider Patient Satisfaction Survey to determine impact of interventions to decrease the number of IV attempts.

CONCLUSION
- Increased training of staff for IV starts and wider availability of ultrasound guided IVs has provided staff with the tools to achieve timely IV access for emergency patients.