Minimizing Patient's Risk for Extravasation – a Collaborative Approach

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Significance:

Outpatient infusion patients are at risk for extravasation when given chemotherapy peripherally, which can cause harm as well as delay care. Not all patients receiving chemotherapy classified as a vesicant or irritant present to their first infusion with central access, and often state they were not educated about the potential need for it in the outpatient clinic.

Furthermore, nurses administering vesicants and irritants have no way of confirming IV placement other than visualizing a brisk blood return. While extravasation rates remain at or below the 0.09% benchmark each quarter, identifying those at risk and preventing chemotherapy extravasations in the absence of a central line remains a top priority at an NCI Designated outpatient infusion department.

Purpose:

- To reduce the risk of peripheral IV chemotherapy extravasation
- Decrease delays in patient care
- Increase patient satisfaction

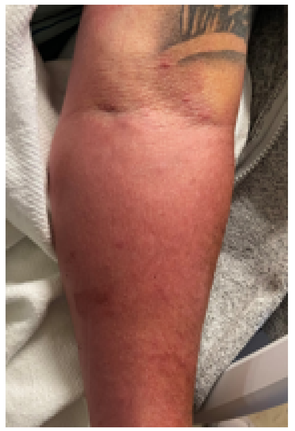
Interventions:

- *Implementation of DIVA tool*
  - An evidence based assessment for patients receiving peripheral IV therapy
  - Initiated in the outpatient clinic at the time of chemotherapy consent to determine the need for central line placement prior to first chemotherapy appointment
- *Provider acknowledgment requirement in EMR for CVC assessment*
  - Nursing/Providers/Pharmacy Collaboration at a multidisciplinary committee
  - Hard stop created in EMR for all treatment plans with vesicant drugs, requiring provider acknowledgment of assessment of CVC necessity
- *Implementation of Ultrasound Guided IV Placement (UGIVP)*
  - Confirms IV placement for those patients most at risk for extravasation when receiving vesicant and irritant classified therapy.

DIVA Tool

Characteristics	No	Yes
Altered Fluid Status: Hypovolemia/Hypervolemia	0	1
Scars/Tattoos/Skin Issues	0	1
Frail/Elderly	0	1
Vein Palpable with tourniquet	2	0
Vein Visible with tourniquet	2	0
Disease History		
Only One Usable Arm	0	2
History of Current/Past IV Abuse	0	2
Chronic Renal Failure	0	1
Diabetes	0	1
Cancer with History of Chemotherapy and/or Radiation	0	1
Patient states of Known History of Difficult IV Access	0	2
Two or more Unsuccessful Attempts at IV During Previous Visits	0	2
Total		

If the patient receives a score of 4 or higher, please educate the patient concerning the potential need for CVC placement and consult the provider



Picture taken by C. Fanning

Nursing Education:

- *DIVA tool*
  - Standardized in the EMR
  - Initial Pilot – GU Clinic and then implemented throughout entire ambulatory care clinics
  - In person education was completed by the Clinical Practice Leader (CPL) in the outpatient infusion room and ambulatory care clinics.
- *Ultrasound Guided IV Placement*
  - CPL completed credentialed online course: *Teleflex: Fundamentals of Vascular Access* as well as in person contact hours with Vascular Access team at health care system main campus
  - CPL created a learning syllabus as well as online learning modules for RN staff members
  - Purchase of vascular access training model to help RNs develop, practice and maintain skills needed for UGIVP
  - RN super users identified in the outpatient infusion room to complete written, and in person training

Discussion:

- DIVA Tool Pilot: GU Clinic
  - 100% of patients that screened positive had port placed prior to cycle 1 or cycle 2 treatment
  - DIVA rolled out to all clinics
    - Data being monitored and staff reeducated where needed
- Super user training for IV Ultrasound remains in progress
  - Will monitor outcomes once fully implemented

References:
Corbett, M., Nesbitt, M., Ranaghan, M. T. (2023). Infusion-Related Complications. *Chemotherapy and Immunotherapy Guidelines and Recommendations for Practice* (pp. 359-401). ONS.
Ehrhardt, B.S., Givens, E. E. A., Lee,R. (2018). Making it Stick: Developing and Testing the Difficult Intravenous Access (DIVA) Tool. *American Journal of Nursing*, 118(7):p 56-62, July 2018.
Nickel, B., Gorski, L., Kleidon, T., Kyes, A., DeVries, M., Keogh, S., Meyer, B., Sarver, M.J., Crickman, B., Ong, J., Clare, S., Hagle, M. (2024). Infusion Therapy Standards of Practice. Infusion Nurses Society.