Efficacy of a “saline only” flush protocol utilizing the Ultrasite® positive displacement device.

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Omnicare Infusion of Northern Illinois, located in DesPlaines, IL, has been utilizing the Ultrasite positive displacement device for the past 2 years. Retrospectively, the organization has been using a saline only flush protocol without recognized catheter occlusions since the implementation of the Ultrasite valve. A prospective saline only study was performed in the long term care population serviced by Omnicare Infusion, utilizing the Ultrasite valve by B. Braun Medical Inc.

Objective:
To determine the effectiveness of normal saline solution as the routine flush protocol for intermittent infusion devices in the long term care population.

Summary:
There are several advantages of using normal saline only versus heparin solution for the maintenance of venous access devices. Risks associated with the use of Heparin as a flush solution include:

- Incompatibilities of some medications with Heparin
- Risks of Heparin Induced Thrombocytopenia
- Increased costs and nursing time

Methods:
A prospective data collection study was completed on patients in three long-term care facilities receiving intermittent infusion therapy. The majority of the intermittent infusions were antibiotic therapy. The Ultrasite positive displacement needle-free device by B. Braun Medical Inc was utilized on all vascular access devices. The venous access devices utilized in this study were 22 and 24 gauge Introcan® Safety peripheral IV catheters and Groshong® PICC catheters. A saline only flush protocol was utilized on all patients and the amount of saline solution used to flush the vascular access devices was 2 to 5mL, depending on the access device. Nursing staff was provided education on the procedure for catheter flushing and the study protocol. A data collection tool was instituted to collect pertinent data on all patients enrolled in the study.

Results:
The clinical evaluation took place over a 9-month period involving 3 long-term care facilities. Of the 112 patients enrolled in the study, 68 patients met the following criteria for inclusion in the study group:

- Intermittent therapy only
- Peripheral IV Catheters and PICC lines
- 2 Days or greater dwell time
- Saline Only Flush Protocol with the Ultrasite valve

Related diagnoses included Cellulitis, MRSA (Wound and Sputum), UTI, Bacteremia, Osteomyelitis, Pneumonia and Septicemia. Patient ages ranged from 31 to 100 years, with the average age being 76. There were 59 patients with peripheral access devices and an average dwell time of 5.3 days. The remaining 9 patients with Groshong PICC catheters averaged 22 days dwell time.

The frequency of flushing varied from every 6 to 24 hours, depending on the intermittent therapy. Over 68% of the devices in this study were flushed at intervals of 12 to 24 hours.

At the end of the catheter observation period, the reason for discontinuation was documented on the data collection tool. The discontinuation reasons were collated and are as follows:

- Therapy completed - 32 patients (47%)
- Pulled out - 14 patients (21%)
- Infiltration - 15 patients (22%)
- Local Phlebitis - 5 patients (7%)
- Other - 2 patients (3%)

Conclusions:
As a result of implementing the Ultrasite positive displacement valve with a saline only flush protocol, Omnicare Infusion noted no catheter occlusions in this study enhancing patient outcomes.