Session 2: Case Study:

Mary is 35-years-old and has Cystic Fibrosis. She developed short bowel syndrome following abdominal surgery. She has been On TPN for 10 years that is given via a dual-lumen tunneled CVAD with a left lateral side exit site. She requires hydration prn and due to her history with vascular access she has limited vein access. The second lumen is used for hydration and blood work.

Mary manages her TPN and is diligent regarding dressing changes, line flushing, monitoring glucose levels, her intake and output. She is proud of the fact that she has not had a catheter-related infection since taking ownership of her line and infusions 6 years ago. She is supported by her partner and the local hospital's HPN program and has is seen at the clinic every 3 months.

She was seen at the clinic 7 days ago and had routine blood work completed. Five days ago, she developed nausea and vomiting the same day her son came home from school with vomiting and diarrhea. Her son stayed home from school for three days. Mary's symptoms lasted about 24 hours and she stated she felt OK since then. Her partner connected and disconnected the TPN the day she was sick and gave her 500 mL 0.9%NaCl hydration.

The partner noted that the lumen normally used for TPN didn't 'flush right', informing Mary that there felt like more resistance with flushing before and after the hydration fluids. Mary stated that's been happening off and on for the last week however the full amount of TPN has been infusing each night so she's not concerned. She's chosen not to flush the dormant line until her blood work next week. She has elected to flush the dormant lumen every couple of weeks or so.

This morning, after disconnecting her TPN line, Mary noticed there looked to be about 100 mL of TPN left in the bag. She felt resistance when flushing and yet she did obtain robust blood flow on withdrawal. Just before leaving for work, she had an episode of dizziness. Her Bld Glucose level was 6.2, pulse 72 and BP 130/76—all vitals within her normal limits.

At 1:00 pm she developed severe chills and muscle aches. She called the HPN program and was instructed to go directly to the Emergency department.

Admission assessment:

T: 39 C, P: 110, BP 100/70.

Physical exam:

- Left flank tenderness.
- CVAD site clean and dry: tender on palpation

Diagnostics:

Blood cultures; exit site C&S; urine culture; sputum culture; chest, abdomen and kidney X-rays, EKG.

Questions:

1. Explain why the rationale for the diagnostic tests performed.
2. What are risk factors for someone like Mary?
3. What are the signs & symptoms of CLABSI

Blood cultures come back:

- Coagulase negative *Staphylococcus* (CoNS) and *Staphylococcus aureus* (*S aureus*)(gram-positive bacteria)
- Klebsiella species & *Escherichia coli* (Gram-negative)

Would you question these results?

How to do Blood cultures: CDC recommendations

Treatment options

Patient/Caregiver strategies: