  **Duke** Regional Hospital

Unit 63 Total Parentral Nutrition

**Supportive Data**:

TPN can be lifesaving in patients with gut failure such as those with GI obstruction, peritonitis, malabsorption, enterocutaneous fistulas, chronic vomiting, chronic diarrhea, prolonged paralytic ileus, radiation enteritis, extensive small bowel resection, and severe acute pancreatitis.

* + TPN must be given only through a central line (catheter) with the tip in the distal superior vena cava or the right atrium.  **A catheter with the tip in the axillary, subclavian, or innominate (brachiocephalic) vein cannot be used** because it is a midline catheter.
  + Pre-existing catheters can be used for TPN and must have recent confirmation of tip location. A chest x-ray may be indicated to verify placement prior to using the line.
  + Catheter placement verification is done by the physician or VAST. An order must be placed into CPOE when catheter is ready for use.

**PICC Tip Confirmation:**

1. In patients with a distinct P-wave, the P-wave will increase in amplitude as the catheter approaches the cavoatrial junction, CAJ.  As it advances to the right atrium (RA), the P-wave will decrease in amplitude and may become biphasic or inverted.  The catheter will be adjusted to the highest P-wave amplitude as compared to baseline ECG. If this is not attainable, a chest x-ray is required.
2. Review chest x-ray to determine tip placement.  The catheter should be positioned in the superior vena cava (SVC), optimally the distal SVC/ (CAJ).  PICC catheters with the tip in the SVC or CAJ may be used for all treatment purposes.  When the SVC or CAJ is not possible, the PICC tip may be left at the level of the bracheocephalic.  This location may be used for all purposes except TPN, chemotherapy, pressers or any other meds requiring a central venous access.

Radiographic Confirmation of PICC TIP {Adult only} will be completed by a competency validated RN and documented in the exam note in the PACS system.  This includes PICCs for TPN, chemotherapy, and patients admitted with existing PICCs.

**Required Resources**:

TPN bag with 1.2 micron in-line filter, tubing and needleless cap attached (prepared by pharmacy)

CHG or alcohol wipes Infusion pump Clean gloves & Mask

**Policy Statement**:

**POLICY:**

1. Infuse only TPN through the TPN labeled lumen unless approved by NSS team. Catheter/lumen should be labeled "TPN only".
2. Do not use stopcocks on any lumen of the TPN catheter during TPN administration.
3. DO NOT DRAW BLOOD FROM TPN CATHETER OR ADMINISTER ANYTHING THROUGH TPN CATHETER EXCEPT TPN OR PER VAST TEAM.
4. **Do not discontinue** TPN for the following reasons:
   1. For patient to shower
   2. For physical or occupational therapy
   3. For patient to get out of bed
5. Notify NSS or pharmacist of any infusion delays or when a TPN is discontinued.  Do not resume TPN administration with a partial bag.
6. Do not change the tubing on any bag of TPN.  Notify the pharmacy.
7. If TPN needs to be temporarily disconnected for any reason, collaborate with NSS.

**PROCEDURE:**

**Initiating New TPN Infusion and Subsequent Bags of TPN:**

1. Verify TPN order with another RN or LPN. (One must be RN).
   1. Verify bag formula
   2. Verify bag number and letter
   3. Infuse all TPN solutions in numerical sequence.
2. Inform patient and/or family.
3. Ensure that correct central line is to be used, and catheter placement is verified.
4. If a chest port is to be used, notify NSS and VAST Team.
5. Ensure 6 rights of medication administration: right patient, right TPN ingredients matching order, right dose, right route, right time, and response after TPN initiated.
6. Wash hands. Don clean gloves and mask.
7. Remove old cap and scrub the open end of central line with CHG for 30 seconds vigorously prior to connection of TPN.  Allow to dry 30 seconds.
8. Hang TPN bag with 1.2 micron filter, tubing, and cap which is prepared by pharmacy. Central line caps are to be changed approximately every 24 hours.  There is only to be one cap on the hub of the central line.
9. Begin infusion at prescribed rate via infusion control device
10. Discontinue maintenance IV fluids when TPN initiated or keep at KVO for PCA, etc.
11. Chart TPN administration in the MAK system
12. Flush TPN line of PICC line with 20mL NS every 6 hours.  Do not disconnect TPN line to flush. Use first port above connection to flush.

**Assessment and Dressing Changes:**

1. Assess and monitor the following:
   1. Record Intake and output
   2. Vital signs every 4 hours with temperature
   3. Record height and weight prior to TPN initiation
   4. Daily weight
   5. Blood glucose check Q6H with sliding scale
   6. Catheter site and dressing.
   7. Signs and symptoms of infection or lipid allergy:  elevated temperature, chills, acute shortness of breath, back pain, chest pain, flushing, diaphoresis, or nausea.
   8. Unilateral swelling, red streaks, or other signs and symptoms of thrombosis or phlebitis near insertion site of PICC or exit site of tunneled central line (i.e., Hickman)
2. Dressing changes are to done by the VAST Team every 7 days, and notify VAST Team if the dressing becomes loose, damp or soiled. If the patient is in the ICU, the Central line dressings will be changed by the ICU nurse.
3. Document assessment every 4 hours.

**Interrupting or Disconnecting TPN:** The decision to interrupt or disconnect TPN will be determined by the physician.

1. If TPN formula not available from pharmacy at any time, hang D10 at the same rate as TPN solution.
2. If patient goes to Operating Room, discontinue TPN and hang 10% Dextrose in Water (D10W) or Dextrose containing solution at the same rate as TPN solution on pump. The surgeon makes this decision and coordinates with nursing as to timing of OR.
3. **Discard any TPN solution remaining at the time of disconnection**.  **Do not reconnect partially infused TPN bagsupon return from any procedure or study.**
4. For any inadvertent disconnection of tubing and site, **DO NOT RECONNECT.** Notify physician.
5. Collaborate with the NSS in advance (if possible) to write a taper order before the bag is discontinued.  TPN will be restarted **with a new order and a new bag at 4:00 p.m.**, or within 24-48 hours post-operatively when the patient is stable and if therapy is to be continued.
6. TPN may need to be temporarily stopped for the following:
   1. Major surgical procedures
   2. When infusion pump incompatible with equipment (MRI scan, PET scan)
   3. Transports by ambulance
7. When TPN is stopped or discontinued, flush catheter with 20mL of normal saline.

Reportable Conditions:

1. Notify the Physician:
   1. Notify MD immediately if patient complains of dyspnea, chest pain, back pain, flushing, or headache
   2. Change in Mental Status
   3. Blood Glucose > 400mg/dl and if patient symptomatic.
   4. Blood Glucose < 70mg/dl and if patient symptomatic.
   5. Fever, chills

2.      Notify the VAST Team for:

* 1. Catheter contaminations, violations, or damage.
  2. Inflammation or drainage at catheter exit site.
  3. Unilateral swelling, red streaks, increased warmth of extremity with catheter present.
  4. Difficulty infusing through or flushing catheter.
  5. Unplanned dislodging or removal of catheter.
  6. When blood culture requested from catheter.

3.     For TPN questions/problems, contact Nutrition Support Service through paging Operator. Pager #1462.