# Maintaining the Option: Optimizing Organ Function (Brain Dead Donors only)

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DONOR RECOVERY
NETWORK

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# Goals of Donor Management

- **Maintain optimal organ oxygenation and perfusion to keep organs viable for transplantation**

- **To provide medical management in compliance with UNOS policy under the supervision and support from, FLDRNs consulting intensivist(s), medical director(s) and/or transplant surgeon(s) to manage potential donors so as to maximize organ recovery.**

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# Donor Management Process

- **Assessment**
- **Outcome identification**
- **Planning**
- **Implementation**
- **Evaluation**

**This is a systematic approach that should be used for all donors to assure optimal donor management.**

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# Donor Management Goals

- **DMGs are 6 goals established to maintain good organ function, and maximize the number of organs transplanted.**
- **These goals are monitored through out the donor management process, and are recorded at specific intervals during the case.**
- **The data from the DMGs is tracked and analyzed to improve donor management**

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# Donor Management Goals

| | |
|---|---|
| **MAP** | 60-100 |
| **ABG** | PH: 7.3-7.45 |
| **PF Ratio** | >300 |
| **Sodium** | 135-155 |
| **Glucose** | <180 |
| **Urine Output** | .5 - 3 cc/kg/hr |

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# FLDRN Brain Dead Order Sets

- **Developed by the FLDRN clinical team, and our medical directors.**
- **Works through each organ system breaking down the required tests, procedures and medications needed for donor mgt.**
- **The procurement coordinator will sit down with the bedside RN, and go through all the required orders.**

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# Labs

- Blood draws
  - Chemistries
    - Compressive panel (organ specific labs will be requested)
    - Q 4-6 hours based on donor stability
  - Cultures
    - Will be drawn and reported to accepting transplant center
  - Serology, tissue typing and NAT
    - 2 red tops
    - 2 purple
    - 10-18 yellow top tubes
      - Tissue typing for transplant centers at Strong and SUNY Upstate (Syr.)
  - ABO testing and confirmatory testing
    - Need two separate draws for confirmation
  - ABG's
    - Q 4-6 or more if Lung donor
    - Based on needs of accepting or potential accepting center

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# Access

- Lines needed for donation process
  - Arterial line (radial or femoral)
    - All donors
  - Central Access (CVP or PICC line)
    - All donors if able
  - Pulmonary Artery Catheter (Swan-Ganz)
    - Any potential cardiac donor
    - Helps with fluid management
    - PAC readings are helpful in determining suitability of the heart

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# Hemodynamics

- Normalize (if able)
  - Blood pressure
  - Heart rate
  - Temperature

- Normalize labs
  - Treat electrolyte imbalances
  - Blood products as needed

# Frequently Used Medications

- Hypotension
  - Fluids
    - Adjusted based on Na
      - NS fluid boluses
      - ¼ normal or ½ normal saline are frequently used
      - D5W or Free water down NG in high Na conditions
      - OPC consults with intensivist or transplant surgeons
  - Dopamine, Neosynephrine, Vasopressin
  - Levothyroxin (T4)

- Hypertension
  - Labetalol
  - Cardene

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# Levothyroxine Sodium (Synthroid, $T_4$)

- **Description**
  - Is a synthetically prepared form of thyroxine
    - Secreted by the thyroid gland

# Levothyroxine Sodium (Synthroid, $T_4$)

- Mechanism of Action
  - Exhibits all actions of endogenous thyroid hormones
    - Enhances O2 consumption of most body tissues
    - Increases the basal metabolic rate and metabolism of carbohydrates, lipids, and proteins
    - Influences the growth and maturation of tissues, increase energy expenditure, and affect turnover of essentially all substrates
  - Thyroid hormones have a direct cardiostimulatory action
    - Cardiac consumption is increased by the administration of thyroid hormone
    - Cardiac output is increased

# Levothyroxine Sodium (Synthroid, $T_4$)

- **Pharmacokinetics**
  - **Administered intravenously**
  - **Absorption can be reduced in patients with CHF**
  - **The half life of T4 in the body is 6-7 days.**
    - **The half life of T3 is 1-2 days**

# Levothyroxine Sodium (Synthroid, $T_4$)

- Donor Dosage
  - 200 mcg diluted in 500 ml D5W
    - Loading dosage is 50 ml of pre-mixed bag of T4, 20u insulin, Dextrose 50% 25 gm, 125 mg Solumedrol all as IV push
  - Infusion rate is 10mcg/h (25 ml/h) to 30 mcg/h (75 ml/h)

# Levothyroxine Sodium (Synthroid, $T_4$)

- Contraindications
  - Untreated thyrotoxicosis
  - Uncorrected adrenal insufficiency
    - thyroid hormones  increase tissue demands for adrenocortical hormones and may thereby precipitate acute adrenal crisis.
  - Enhances response to anticoagulant therapy
    - Prothrombin time should be closely monitored
  - Can cause hypokalemia

# Organ Specific Testing

- **Kidney:** (potential in all donors unless pre-existing renal disease)
  - Urinalysis
  - BUN/Cr
  - Creatinine Clearance
- **Pancreas:** (potential is usually <u>≤55</u> on all donors)
  - Amylase
  - Lipase
  - Glucose
  - HBA1C (if able)
- **Liver:** (potential on all donors up to 85 and in some cases older)
  - Liver function tests to include (GGT, LDH)
  - PT/PTT/INR
  - On specific cases a bedside liver biopsy may be requested

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# Organ Specific Testing

- **Heart:** (potential on only brain dead donors usually up to age 60-65)
  - ECG
  - ECHO
  - ABG
    - Q 6 unless requested more
  - SWAN readings available
  - Cardiac Cath
    - Females ≥45
    - If cardiac or drug history is present (upon request)
    - Males ≥40
    - If cardiac or drug history is present (upon request)
  - Cardiac enzymes

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# Organ Specific Testing

- **Lungs:**
  - **Chest X-ray**
  - **O2 challenge testing**
    - **Base line ABG on 40% Fi02 (PO2 >100)**
    - **ABG on 100% 5cmH2O of Peep for 15 minutes**
    - **ABG to keep FiO2 >100 on 40%**
  - **ABG**
    - **Q 6 unless requested more per request**
  - **Bronchoscopy**
  - **Gram stain**


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