ERAS for Laparoscopic Donor Nephrectomy
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I. Why?
- Goal is to increase people willing to donate by
  - Decreasing pain and amount of opioids needed
  - Decreasing LOS
  - Decreasing complications

II. Key ERAS Elements
- Preop education
- Fluid Management
- Pain Management
- Early Mobilization
- Early Oral Feeding

III. Preoperative CHO Drink- Encourage Fluids
- Glycogen loading
- Insulin release
- Reduced insulin resistance
- Minimize protein and muscle loss
- Retain lean body mass
- Improve strength of large muscle groups
- Decrease thirst/hunger
- Improve well being

IV. Why Multimodal and Opioid Minimization
- Over 50% of surgical patients report poor postoperative pain control
- 1:15 surgical patients develop opioid addiction or dependence
- Poorly managed acute surgical pain delays healing, increases complication rates, prolongs hospital stay, increases cost and risk of chronic post-surgical pain
- Chronic pain is more prevalent than all forms of cancer

V. Opioid Side Effects
- Respiratory depression
- Pharyngeal muscle weakness
- Sedation
- PONV
- Delayed return of GI function
- Urinary retention
- Pruritis
- Inhibition of immune response
- Potentiation of tumor growth and angiogenesis
- Opioids suppress activity of natural killer cells
- Opioid Induced Hyperalgesia- OIH
  - Increased sensitivity to painful stimuli as a result of opioid use

Vi. Multimodal Pain Management
- Acetaminophen 1000 mg po and q8 hours IV or PO
- Tramadol 50 mg po

- Gabapentanoids- Pregabulin

Tramadol 50 mg po

Gabapentanoids- Pregabulin
Decrease pain scores and opioid use
Anxiolytic
Anticonvulsant
Anti-hyperalgesia
Reduces and Prevents chronic neuropathic pain
Decreases PONV
Most effective if given after surgery also

VII. Thromboprophylaxis/Normothermia

VIII. Intraop

Midazolam in Preop
TIVA with BIS- Propofol infusion/Esmolol infusion/Precedex infusion
Ketamine on induction 0.5 mg/kg IV
Redose 10 mg or 0.25 mg/kg every hour. Stop 2 hours prior to end of case OR run infusion 0.1-0.3 mg/kg/hr
Esmolol bolus 0.5 mg/kg on induction- Infusion 50 mcg/kg/min
Precedex infusion 0.2-1.0 mcg/kg/hr
MgSO4 infusion 2 grams over 15 minutes
4 Quadrant TAP after induction
Bupivacaine 0.25% with EPI 60 cc total and Dexamethasone 10 mg
Dexmethasone
4 Quadrant TAP Block

Heparin IV at direction of surgeon- usually 3000 units
Zofran 4 mg prior to end of case
IV Acetaminophen ordered with preop meds to be taken to PACU or given 8 hours after preop dose- usually 1400

IX. GDFT with SV Optimization

Fluids
Albumin 500 cc X 2 over 3 hours
Begun in preop
Minimize crystalloids
Use crystalloids for bolus protocol

X. Emergence

Emergence- Don't treat respiratory rate with opioids
By going opioid sparing- smaller amounts will give greater results

XI. Postop-Continue Multi-Modals

Postoperative
Ketorolac 15 mg 6 hours postop
Acetaminophen 1000 mg po q8 hours
Pregabalin 75 mg po q 12 hours
Celebrex begun on POD1
Heparin SQ q 12 hours
Hydromorphone 0.2 IV prn for severe breakthrough pain (8-10)
T ramadol 50 mg po prn mild to moderate breakthrough pain (4-7)

XII. The Results