Meds for the OR

- **Antibiotics** - Cefazolin or cipro/ clindamycin  but **NOT** Gentamycin
- **Solumedrol** (methylprednisolone) 500mg
- **Thymoglobulin** 1.5mg/kg (x4) or **Basiliximab 20mg** (D0, D3)

- **Heparin 5,000u** sc----→ post op
  - continue BID/TID or
  - **voodoo drip 500u/hr (PTT 45-60)** when worry about thrombosis
Choice of immunosuppression

Thymoglobulin
- Anti-thymocyte globulin
- Antibody towards multiple antigens of lymphocytes
- Goal: delete lymphocytes, effect lasts up to 9 months

Potential side effects (as soon as infusion starts):
- anaphylactic shock (rapid drop in BP, HR after few minutes of infusion)
- cytokine release syndrome: always to some extent (fever, chills, myalgia, hypotension)
- allergy-itching, redness
- flush pulmonary edema
- RBC down, PLT down

Prevention
- ask patient if has/had a rabbit, allergy to rabbit,
- premed: Benadryl, Tylenol, Steroids, IV fluids in the OR and after slower than standard infusion rate
- (for 500ml bag) standard central 83ml/hr (6hrs) -> run 41ml (12 hrs)
  peripheral 42ml/hr (12hrs) -> run 28ml/hr (18hrs)
- lower the dose, standard 1.5mg/kg (x4), give half of the dose: 0.75mg/kg

Patient selection:
Usually to all our DDRtx patients unless:
- 0 HLA mismatch
- contraindication to Thymo:
  - Very old, white patient with 0 PRA, kidney expect to work right away
  - Need to avoid hypotension (patients on midodrine)
  - Jehovah witness

Basiliximab (anti-IL2 antibody)
- Much less potent than Thymo
- Short infusion in the PR and Day 3
- NO side effects

Patient selection:
Thymo yes especially in:
- highly sensitized patients
- AA
- Expected DGF
OR infusions

1. Antibiotics first
2. Than Steroids-

Solumedrol 500 mg, 50 ml IV fast drip
Thymoglobulin-infuse via filter, is good for 24 hrs after reconstitution in room temp.
Thymo BIG bag for SLOW drip

Thymoglobulin

Solumedrol (Basiliximab too) SMALL bag for FAST drip

Solumedrol
Choice of immunosuppression

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Reported 3 renal arteries,
Found 4 arteries,
49 yo, 4/28/2019
Right renal vein extension
(using IVC)
Donors

Deceased Donors
• Brain Dead Donors (most of them)
• Donation after Cardiac Death (DCD)
  (Warm Ischemia Time – from extubating to initiation of cold perfusion of the organs with preservation solution) WIT
  • WIT 0-90 min, the longer the higher chance for DGF (delayed graft function) (HD within first week)

Living donors
• Kidney should work right away
  • High UOP, >100ml/hr

In the OR

Retroperitoneal space- external iliac arteries
• Incision (Gibson= hokey stick)
• Lateral abdominal muscles
• Lateral Rectus Sheath Incision
  • No muscles transected, rectus pushed medially

Intraperitoneal Space common iliac arteries
• Midline incision
• SPK
• Calcified external iliac arteries

Drains
• Nr 1 (lateral) next to kidney in the retroperitoneal space
• Nr 2 (over incision) over the fascia, in subq tissue in obese patients

Advantage
• allows to quickly diagnose bleeding
• collects fluid building around the kidney
• Decrease pressure from fascia, chance for leak from wound

Disadvantage
• Risk of bleeding from sc, skin. (watch for collaterals under skin)
• Pain when pulling
Gibson, J, Hockey stick incision considered the gold standard incision for renal transplant.

- **Advantages**: gives a good exposure to the iliac vessels and graft placement.
- **Disadvantages** –
  - The abdominal oblique muscles are divided vertically; there is a chance of the denervation of the muscles leading to hernia formation.

ARS approach:

- **Advantages**:
  - Minimal dissection and tissue damage
  - Avoids transection of the abdominal muscles—less pain, better healing, lower risk of hernia and wound complications
  - Utilized the major strength layer of the abdomen for closure
  - Excellent visualization—directly over the iliac vessels and bladder for ureteral implantation
  - faster opening
  - simpler, faster closure
  - easily to be adopted
• September 2019
• Anterior Rectus Sheath Approach

- belly button
- midline
- ARS incision
- Gibson incision
- left anterior superior iliac spine (ASIS)
September 2019
Lateral sheath approach:
• September 2019
• Lateral sheath approach:
**Surgical primary wound management**

- Keep covered with dressing unless soaked with fluid, blood - change dressing
- **wound hematoma**
  - DO NOT OPEN IT, keep it close to prevent infection
- **blood leaking from the wound**
  - DO NOT OPEN IT, pressure dressing

**Fluid leaking from the wound**

- **Q tip** probing - deep, superficial, fascial defect
- **Swab culture**

**negative**

- **wound gashing fluid**
  - wound dehiscence?
  - non contrast CT
  - If yes → Surgery

**positive**

- **some fluid leak**
  - fat necrosis,
    - fluid overload
  - **DO NOT OPEN THE WOUND**
    - Keep dressing,
      - Give Lasix
  - Quant tissue culture, (black top tube)
  - If negative - wound vac

- **wound infection**
  - Surgical wide open debridement
    - Packing, dressing change twice a day
    - Silvadine - G+, Gneg
    - Sulfamylon - Pseudomonas
  - DO NOT do IV antibiotics + close wound = resistant bacterial infection
Post op management

Goal

- **Maintain** SBP > 100, MAP >70

- **Hypotension**
  - Hypovolemia
  - Bleeding. (cold skin)
  - Thymo reaction. (warm skin, fever)

IV Fluids

- Day 0- cc/cc
- Day 1, 100-125ml/hr
- Day 2- hep block + Lasix. 100mg IV BID
- Day 3- foley out (mobilizing fluids)

How

- IV fluid , cc/cc, bolus, 5% albumin

- IV 5% albumin, bleed? Drain red→ RBC tx
- Thymo slow down, hold, RBC Tx?
- Dopamine drip

- Stop Thymo, Phenylephrine (levophed), if sudden drop

Abdominal binder- do not close tight when in bed

Delayed Graft Function

Patient needs dialysis, **do NOT do PD**, place line and HD

Hypertension

1. Norvasc (Ca blocker)
2. Beta- blocker
3. Clonidine, if on before tx
4. Bradycardia- hydralizine
Nice kidney perfusion, “flames of fire”, red – arterial, blue - venous
Resistance index or Pourcelot index

RI: $S - ED / S$

Normal: 50 – 70%

Abnormal: > 80%

- For transplanted kidney
- RI = 0.5 - 0.95 is ok
Nice main **renal artery (RA)** flow
- Nice shape of waive
- RI = 0.5 - 0.95
Nice Segmental arterial flow
- Nice shape of waive
- RI= 0.5 - 0.95
Nice **arcuate artery** flow
- Nice shape of waive
- RI= 0.5- 0.95
Nice flow via renal vein
• negative flow
• (opposite direction then arterial)
Increase resistance RI>90%

Obstruction in kidney parenchyma:
- Acute kidney injury
  (donor, preservation, reperfusion injury, rejection)

Obstruction in renal vein:
- partial vein thrombosis
- renal vein compression
Renal artery stenosis:

- Increased blood **Velocity** via anastomosis: >200cm/s
- Decreased perfusion of the kidney
- Decrease upstroke
- Decrease RI <0.5
- Parvus Tardus (>80% stenosis)

- In living donor kidney tx, no Carrel patch so Velocity might be elevated due to small diameter of anastomosis

**Normal flow**
RENAL VEIN THROMBOSIS
1. ACUTE PAIN OVER THE GRAFT,
2. HEMATURIA

1. NO (MINIMAL) FLOW IN THE KIDNEY

Acute renal vein thrombosis / Poor outcome

Right kidney

Severely decreased renal perfusion

Left kidney

Normal perfusion for comparison
1. Reversal of diastolic flow
2. NO FLOW in renal vein
3. RI > 1 !!!
Do you have problem in your life?

Yes -> Is there anything you can do about it?

Yes -> Yes

Yes -> No

No -> No

No -> So don’t worry !!!