ANESTESIA Y TRANSPLANTE: Protocolo Transplante Renal

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Valencia 28 de Marzo de 2011

QUESTIONS

- WHAT DOES AN UROLOGIST WANT TO KNOW ABOUT ANESTHESIA?
- WHAT DOES AN ANESTHESIOLOGIST WANT TO KNOW ABOUT RENAL TRANSPLANT?
- WHAT DO THEY WANT TO KNOW ABOUT THE PATIENT BEFORE A RENAL TRANSPLANT?

WHAT DO THEY WANT TO KNOW ABOUT THE PATIENT BEFORE A RENAL TRANSPLANT?

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PREOPERATIVE CONSIDERATIONS PRIOR TO RENAL TRANSPLANT

- Cardiovascular disease
  - (ischaemic and congestive cardiac failure)
  - HTA
  - Cardiovascular risk factors (homocysteine and C reactive protein)
- Diabetes mellitus
- Anaemia
- Hyperparathyroidism
- Infections (Hepatitis B, C, HIV)
- Duration of end-stage renal disease
- Dyslipidaemias

TYPES OF RENAL TRASPLANT

- LIVING DONOR
- CADAVERIC DONOR
- NON HEART BEATING DONOR
- ANTICIPATED
- COMBINATED WITH PANCREAS, LIVER, HEART

EFFECTS OF URAEMIA

- CARDIOVASCULAR SYSTEM
  - HTA, ISCHAEMIC HEART DISEASE, CARDIAC FAILURE, PERICARDITIS
- RESPIRATORY SYSTEM
  - PULMONARY OEDEMA, PLEURAL EFFUSION
- GASTRO-INTESTINAL
  - STRESS ULCERATION, DELAYED GASTRIC EMPTYING
- CENTRAL NERVOUS SYSTEM
  - PERIPHERAL NEUROPATHY, AUTONOMIC NEUROPATHY, MENTAL SLOWING, CONVULSIONS, COMA
- RENAL
  - FLUID AND ELECTROLYTE UMBALANCE
- HAEMATOLOGYCAL
  - ANAEMIA, BLEEDING PREDISPOSITION
- INMUNOLOGICAL
  - INMUNOSUPRESSION

PREOPERATIVE EVALUATION

- CARDIOVASCULAR SYSTEM

  Ischaemic cardiac disease:

  - Exercise tolerance testing (older than 50 and diabetes)
  - Dobutamine stress echocardiography
  - Thallium dipyridamole stress test
  - Reversible ischaemia can be corrected

  Congestive cardiac failure:

  - Reduced ejection fraction(LVEF) by echocardio

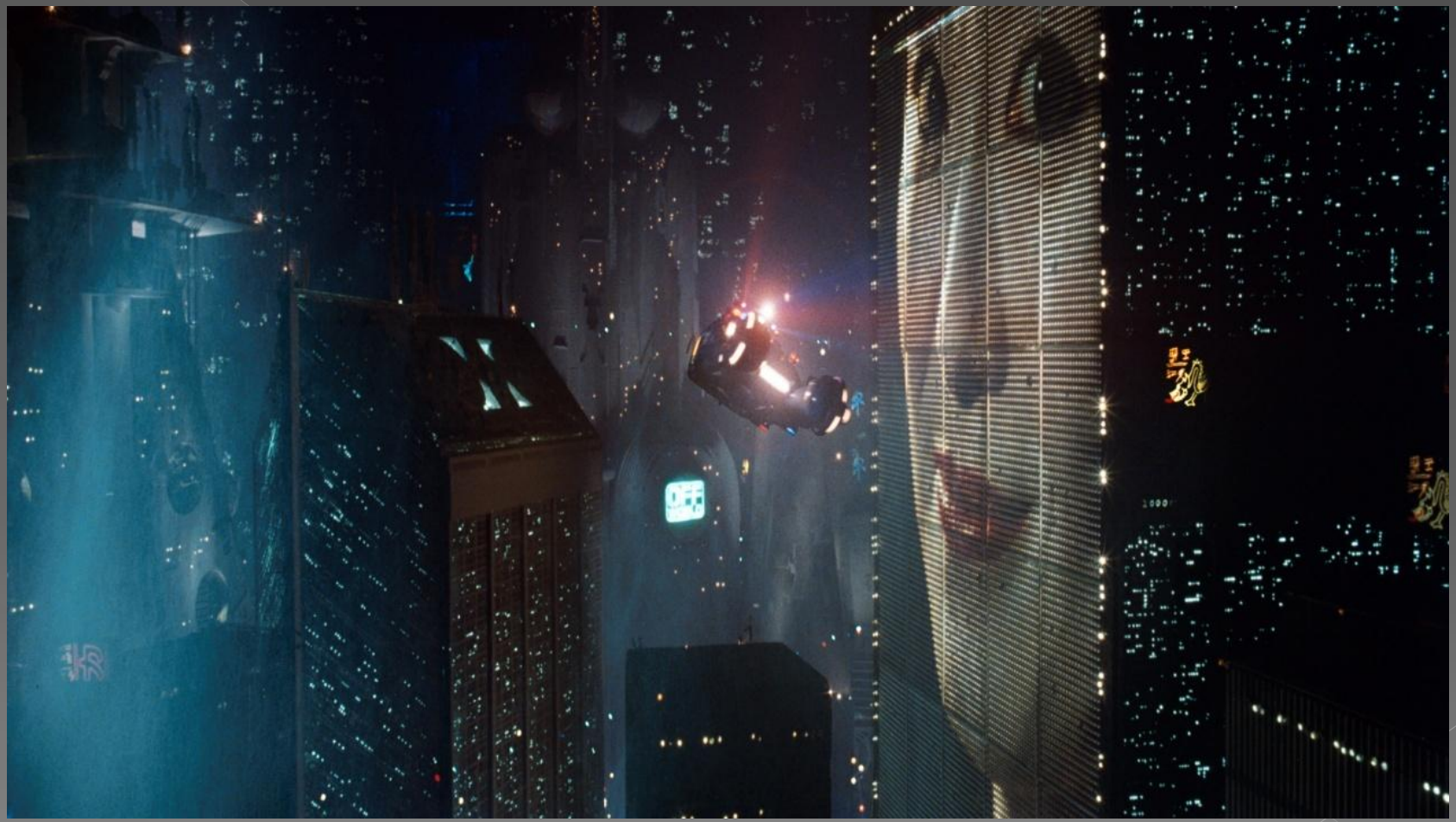
PREOPERATIVE EVALUATION

- HTA
- Cronic hta (worse graft outcome)
- Diabetes mellitus
- Anaemia (target Hb 12g/dl)
- Hepatitis C
- HIV infection

RENAL HISTORY

- DURATION OF ESRD
- DURATION OF DYALISIS THERAPY
- TIME OF LAST DYALISIS PREVIOUS TO TX
- WEIGHT LOSS IN EVERY DYALISIS
- RESIDUAL DIURESIS
- BLOOD PRESSURE
- VASCULAR ACCES

WHAT DOES AN UROLOGIST WANT TO KNOW ABOUT ANESTHESIA?



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ANESTHETIC MANAGEMENT

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ANESTHETIC MANAGEMENT

- INTRAOPERATIVE VOLUME EXPANSION
- LAST HD: HIPO OR HIPERVOLEMIC
- IF PERITONEAL D.: NORMOVOLEMIC

FLUID THERAPY GUIDED BY:

- **CONTINOUS CVP**
- **SVV**
- **PCP**

FLUID THERAPY

CRISTALOIDS: POTASIUM FREE FLUIDS

- NORMAL SALINE SOLUTIONS

  HYPERCHLOREMIC METABOLIC ACIDOSIS

COLLOIDS: IF LARGE VOLUME ARE NEEDED

- ALBUMIN
- HES (15 ml/Kg/dia)

Roberts I, Alderson P, Bunn F et al. Colloids versus crystalloids for fluid Resucitation in critically ill patients. Cochrane Database Syst Rev 2004

SAFE ANESTHETIC DRUGS

- **INDUCTION AGENTS**
  - PROPOFOL
  - PENTOTHAL
- **INHALATIONAL AGENTS**
  - ISOFLURANE
  - SEVOFLURANE
  - DESFLURANE
- **INTRAOPERATIVE OPIOIDS**
  - FENTANYL
  - REMIFENTANIL
- **NEUROMUSCULAR BLOCKERS**
  - SUCCINYLCHOLINE (K<5,5mEq/l)
  - ATRACURIUM
  - CISATRACURIUM
- **POSTOPERATIVE ANALGESICS**
  - MORPHINE
  - METADONE

ANESTHETIC MONITORING

- ADEQUATE VENOUS ACCES
- CENTRAL VENOUS LINE
- INTRA-ARTERIAL PRESSURE MONITORING
- CCO
- PULMONARY ARTERY PRESSURE

INTRAOPERATIVE GRAFT OPTIMIZATION

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MANNITOL

- Protects against renal cortical ischemia by expanding intravascular volume
- Reduce the potential of tubular obstruction
- Enhance the release of vasodilatadory prostaglandines in the kidney and may act as a free radical scavenger

MANNITOL

- Risk of pulmonary edema
- Concomitant hydration is necessary to prevent ARF
- > 200 g/day: risk of hyperoncotic kidney failure
- When? Inmediately before vascular anastomoses
- Doses: 0,25-0,5 g/kg

LOOP DIURETICS

- No evidence that they shorten duration of ARF, reduce the need of dyalisis or improve outcomes in patients with ARF
- high doses are harmful because they may disturb the protective corticomedullary redistribution of blood flow

DOPAMINE

- Low doses to increase renal blood flow
- The available evidence does not warrant the routine use for perioperative care

POSOPERATIVE ANALGESIA

- Epidural catheters with opioids
- Paracetamol 3 g/day
- Avoid NSAIDs
- If CI for epidural: IV PCA with morphine

WHAT DOES AN ANESTHESIOLOGIST WANT TO KNOW ABOUT RENAL TRANSPLANTATION?

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INTRAOPERATIVE OBJETIVES BEFORE REPERFUSION

- Restore intravascular volume (CVP> 15)
  - CVP
  - CARDIAC OUTPUT
  - SVV
  - PCP
- Avoid hypotension (Sistolic >130)
  - DOPAMINE
  - NORADRENALINE

FACTORS AFFECTING RENAL PERFUSION

- Mean arterial pressure
- Volemic status (CVP)
- Fluid therapy
- Vasoactive drugs
- NSAID
- Tubular damage
- Blood derivates

PERIOPERATIVE CARE

MULTIDISCIPLINARY TEAM

Senior staff in:

- Anesthesiology
- Urology
- Nephrology

Thank you for your attention

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