

# Indications for Hemoperfusion

## Broad generalization:

- Hemoperfusion should only be used in situations where
  - there is severe life-threatening intoxication with substances which are not going to be well removed by the liver or kidneys.
  - There is an impairment of liver and kidneys, preventing clearance

If a toxin is equally well cleared by hemodialysis and hemoperfusion, then hemodialysis is preferred, because it will also correct any underlying acid-base disturbance.

## Specific Indications

- End stage renal failure with aluminium intoxication where it is used along a chelating agent
- Liver Failure: as bridging therapy, to remove the toxins that would otherwise cause coma, when waiting for a transplant. This indication is debated.

## Specific Toxicities

- The following drugs are well cleared (at least in animal models):

### Suicide favourites

- Paracetamol
- Barbiturates
- Aspirin
- Tricyclics
- Phencyclidine (PCP)
- Theophylline
- Phalloidin (from Amanita Phalloides, the death cap mushroom)

### Elemental metals

- Iron
- Thallium
- Aluminium

### Chemotherapy agents

- Doxorubicin
- Cisplatin
- Methotrexate

### Antibiotics

- Vancomycin
- Gentamycin
- Ampicillin
- Clindamycin
- Isoniazid

### Accidental industrial toxins

- Paraquat
- Diquat
- Parathion
- Methylparathion
- Organophosphates
- Trichloroethane
- Ethylene oxide
- Carbon tetrachloride

### Accidental hospital toxins

- Digoxin
- Diltiazem
- Metoprolol
- Promethazine
- Chlorpromazine
- Valproate
- Tramadol
- Colchicine

## Removal of specific substances of interest

- **Lipopolysaccharide endotoxin:**
  - The cell wall component of gram-negative bacteria, which is responsible for much of the nastiness you see in septic shock
- **Superantigen:**
  - The secreted exotoxin of gram-positive bacteria, which directly activates T cells by binding to the MHC class II molecules.
- **Various cytokines:**
  - Both proinflammatory and antiinflammatory ones are cleared by hemoperfusion