

***Occupational Renal
&
Reproductive
Diseases***

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Occupational Renal Diseases

- **Acute renal dysfunction:**

Acute tubular necrosis

Organic solvent – heavy metals – arsine

- **Chronic renal dysfunction:**

Chronic interstitial nephritis

● heavy metals - Organic solvent – silica

- **Nephrotic syndrome:**

mercury

Important nephrotoxins

- *Metals:*

Lead – mercury – cadmium – chromium

- *Solvents:*

Halogenated hydrocarbon

CCl₄, trichloroethylene

Non Halogenated hydrocarbon

Toluene , phenol , monoethylether


- *Others:*

Arsine , silica , phosphors

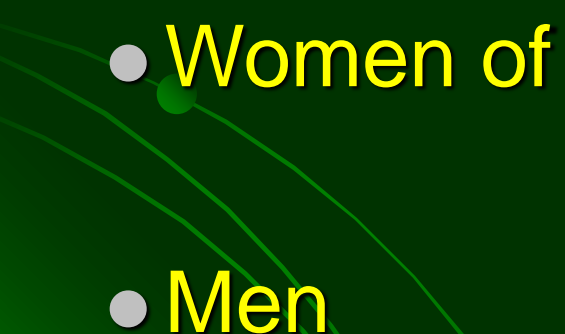
Screening Tests

- **BUN , Cr**: is inadequate do not become abnormal
until significant renal damage
- **High molecular weight proteinuria**:
Albumin , ferritin
- **Low molecular weight proteinuria**:
B2 microglobuline , Retinol binding protein
- **Enzymuria**:
N-acetyl glucose aminidase , LDH

Reproductive Toxicity

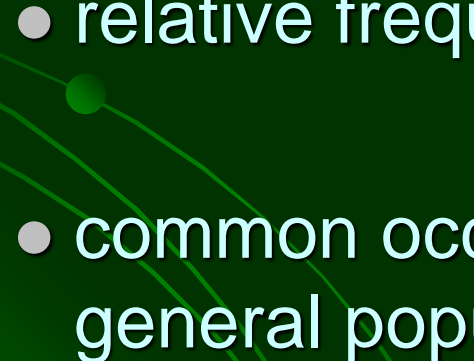
- First occupational reproductive hazard Percival Pott but not taken seriously until
 - 1975 lead exposed male workers in Romania 1977 DBCP in exposed male workers in California
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Reproductive Toxicity

- REPRODUCTIVE FUNCTION
 - Women Who Are Pregnant
 - Women of Child Bearing Age
 - Men
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Reproductive Toxicity

Difficulty in studying repro toxicity in women

- nature of the female cycle
 - relative frequency spontaneous abortions
 - common occurrence of birth defects in general population
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Adverse Male Reproductive Effects of Selected Agent

| Agent | Out come | Strength |
|-----------------------|------------------------|-----------------|
| Alcohol | azoospermia | + |
| Boron | oligospermia | + |
| chloroprene | asthenospermia | ++ |
| Lead | Oligospermia | ++ |
| Mercury | Decrease libido | + |
| Microwave | oligospermia | + |
| Excessive heat | oligospermia | + |
| Ion-radiation | oligospermia | ++ |

Adverse Female Reproductive Effects of Selected Agent

| Agent | Out come | Strengt h |
|----------------------------|--------------------------------------|----------------------|
| Arsenic | SAB-LBW | + |
| Carbon monoxide | SAB- menstrual dis | + |
| Mercury | SAB- LBW CNS malformation | ++ |
| Lead | SAB-infertility | ++ |
| Organic solvent | SAB- menstrual dis | +/? |
| VDT | SAB - BDs | -- |
| Physical stress | Preterm LBW-SAB- | +/? |