بسم الله الرحمن الرحيم
خدمت همکاران
گرامی خیر مقدم
Cisplatin induced Nephrotoxicity Laboratory Findings
Cisplatin induced Nephrotoxicity Animal Model (RAT)
General
• Cisplatin induced nephrotoxicity is dose, time, age and gender dependent
• Renal function in Cisplatin induced nephrotoxicity is dose and gender related
Time course of cisplatin-induced nephrotoxicity and hepatotoxicity.

Gender and Cisplatin

Nematbakhsh et al. **Gender difference in Cisplatin-induced nephrotoxicity in a rat model: greater intensity of damage in male than female.**
Renal Function and Cisplatin

Cisplatin induced Nephrotoxicity

The Effect of Antioxidants
Vitamin E and Cisplatin

Vitamin E, Gender, and Cisplatin

Jilanchi et al. Vitamin E Is a Nephroprotectant Agent in Male but Not in Female in a Model of Cisplatin-Induced Nephrotoxicity. ISRN Nephrol. 2013; 2013: 280395. Published online 2013 Jun 23. doi: 10.5402/2013/280395
**L-Arginine and Cisplatin**


L-arginine and Cisplatin in Diabetic Subjects

Cisplatin induced Nephrotoxicity

The Effect of Estrogen
Estrogen and Cisplatin

Cisplatin induced Nephrotoxicity

The Effect of Magnesium
Cisplatin induced Nephrotoxicity

The Effect of RAS components
Vitamin C, Losartan and Cisplatin

Angiotensin 1-7 and Cisplatin (Male)

Pezeshki et al. The Reno-Protective Role of Angiotensin 1-7 in Cisplatin Induced Nephrotoxicity. KWJ. 2019 (InPress)
Cisplatin induced Nephrotoxicity

The Effect of Exercise
Cisplatin induced Nephrotoxicity

The Effect of Herbals
Pomegranate Flower Extract and Cisplatin (Female)

Morus alba and Cisplatin (Male)

doi: 10.4103/0971-6580.117256
Cisplatin induced Nephrotoxicity

The Effect of Dextrose
Dextrose Hydration and Cisplatin

Karimi et al. Dextrose hydration may promote cisplatin induced nephrotoxicity in rats; gender related difference. Indonesia Medical Journal 2019 (InPress)
Cisplatin induced Nephrotoxicity

Conclusion
Basic Results in Cisplatin Induced Nephrotoxicity (CIN)

- Cisplatin induced nephrotoxicity is gender related; more kidney damage in male
- Cisplatin induced nephrotoxicity is dose, time and dependent
- Renal function in Cisplatin induced nephrotoxicity is dose and gender related
Basic Results in Cisplatin Induced Nephrotoxicity (CIN)

- **Vitamin E** is nephro-protectant against CIN in **male** not in **female**
- **Vitamin C** is not nephro-protectant against CIN in **male**
- **L-Arginine** is nephro-protectant against CIN in **male** not in **female**
- **L-Arginine** is not nephro-protectant against CIN in **diabetic** subjects
Basic Results in Cisplatin Induced Nephrotoxicity (CIN)

• **Estrogen** is a risk factor to aggravate CIN in female

• **Fennel Essential Oil as** a source of phytoestrogen, is not nephroprotectant against CIN in female

• **Magnesium** is not nephroprotectant against CIN in male
Basic Results in Cisplatin Induced Nephrotoxicity (CIN)

• Exercise is nephro-protectant against CIN in male not in female

• Pomegranate Flower Extract is nephro-protectant against CIN in male not in female

• *Morus alba* L. Leaf Extract is nephro-protectant against CIN in male
Basic Results in Cisplatin Induced Nephrotoxicity (CIN)

• **Losartan** is nephro-protectant against CIN in **male** not in female. Losartan is a risk in **female**

• **Angiotensin 1-7** is nephro-protectant against CIN in **male** not in female

• **Enalapril** is nephro-protectant against CIN. Enalapril is a risk in **male and female**
Basic Results in Cisplatin Induced Nephrotoxicity (CIN)

• Dextrose hydration (or 1/3 – 2/3) is a risk during cisplatin therapy; It aggravates CIN; special in female
Cisplatin induced Nephrotoxicity

Please Consider the Following Suggestions in Clinic
Please Remember cisplatin induced nephrotoxicity is different in both sexes and different ages
Suggestion # 2

Please

Do not start cisplatin treatment in a woman who is on a monthly cycle (or ERT); high level of estrogen is a risk factor.
Suggestion # 3

Please

Do not give antioxidants before consideration; some of antioxidants have risk

E:Yes, C:No
Suggestion # 4

Please

Be careful to give magnesium
Suggestion # 5

Please Do not hydrate patients with dextrose (or 1/3 – 2/3) during cisplatin therapy
Suggestion # 6

Please

Be careful to give cisplatin and losartan (or enalapril) simultaneously in female patients
Please
Be careful to suggest vigorous exercise during cisplatin therapy in female patients
Suggestion # 8

Please

Determine the details of a herbal drug as an antioxidant before administration
Suggestion # 9

Please

Remember that RAS components act differently during cisplatin therapy in the kidney; special in female
Suggestion # 10

Please

If you are a supporter of vitamin E, losartan, or erythropoietin to protect the kidney against cisplatin, do not give simultaneously with estrogen, phytoestrogen. *Estrogen eliminates the effects of vitamin E, losartan or erythropoietin*
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