

A Short Note on Renal Toxicity/Nephrotoxicity

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Introduction

The word nephrotoxicity is a merger of two different words nephron+ toxicity which means kidney poisoning. Nephrotoxicity is also known as Renal Toxicity is the accumulation of toxic substances/wastes in the kidney which impairs its normal functioning. It can be too much severe & can cause fatality. We can say that it is nothing but the poisonous effect of some substances like toxic chemicals & medications on the normal functioning. [1] There are certain substances which are termed as nephron toxins as they show nephrotoxicity For instance many anticancer drugs, some environmental pollutants, antibiotics, radio contrast agents, recreational drugs. Renal toxicity is monitored & is diagnosed easily by performing a simple blood test. Nephrotoxicity can be easily evaluated by measuring the BUN (blood urea nitrogen), levels of serum Creatinine, glomerular filtration rate & clearance of Creatinine. A low Creatinine clearance indicates the poor functioning of the kidney Normal Creatinine level is between 80 - 120 μ mol/L in healthy individuals. A normal Creatinine level in healthy individuals is in between 0.7 to 1.3 mg/dL (61.9 to 114.9 μ mol/L) for men and 0.6 to 1.1 mg/dL (53 to 97.2 μ mol/L) for women. [2] If the Creatinine level is greater than 1.2 for women and greater than 1.4 for men it is an early sign that the kidneys are not properly working & it's time to visit the health care professional & manage your life style & diet. In interventional radiology a patient's Creatinine clearance levels are checked & assessed before performing any procedure. It can cause the permanent kidney damage & the patient may have to take medicines life time or has to undergo dialysis in some extreme cases. Nephrotoxicity occurs when kidney-specific detoxification and excretion do not work properly & their equilibrium changes. Exposure to drugs often results in toxicity in kidney & certain diseases & medical conditions also lead to renal toxicity like low blood pressure for a very long period of time, high blood sugar level for a very long period of time, enlarge prostate glands in men. [3]Types of renal toxicity/nephrotoxicity: There are several types of nephrotoxicity like cardiovascular renal toxicity that occurs due to the intake of cardiovascular drugs by the patients

generally speaking due to use of common drugs of choice like General: diuretics, β -blockers, vasodilator agents and Local: ACE inhibitors, ciclosporin, tacrolimus. Interstitial nephritis also called by the name tubule interstitial nephritis which is the inflammation of the area of the kidney called as renal interstitium. There are many factors that provoke the inflammatory process inside the renal institium like there are some pharmacologic, environmental, infectious and systemic disease contributors. It is present with a wide number of different signs & symptoms that includes fever, fatigue, nausea, vomiting, loss of weight. [4] The main causative agent is the use of analgesic or antibiotics like the extensive use of methicillin. This disease is also caused by other diseases & the toxins build up damages the kidney. It can be evaluated by carrying a simple blood test which will determine a high level of eosinophil's in the blood. There are several other conditions that also can develop includes a very high concentration of potassium in the blood, metabolic acidosis & failure of the kidney. Glomerulonephritis: It is a very commonly used term that describes the impairment of kidney as a result of inflammation either of glomeruli or of the small blood vessels in the kidneys, hence the name. Signs & Symptoms are high protein content in the urine, increase fat in the blood. [5] The nephritic syndrome is characterised by blood in the urine and a decrease in the amount of urine in the presence of hypertension.

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