

Short Communication

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Chronic Kidney Disease: Risk Factors and Prevention

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Chronic kidney disease (CKD) is considered as a serious metabolic health problem among population worldwide, about 1 in 4-7 of adults and elderly. It is a gradual loss of kidney function due to glomerular microvascular damage. CKD can be diagnosed using estimated glomerular filtration rate (eGFR) test. It is classified into 5 stages:

1. Kidney damage with normal GFR, 90 or above,
2. Mild decrease in GFR, 60 to 89,
3. Moderate decrease in GFR, 30 to 59,
4. Severe reduction in GFR, 15 to 29, and
5. End-stage renal disease (ESRD).

In the early stage of CKD, protein in the urine can be detected. Common symptoms of CKD are tiredness, swollen ankles, feet or hands, shortness of breath, and blood in urine. In the ESRD, kidney failure occurs requiring dialysis treatment leading to global illness burden and a million of pre-matured death each year. Understanding risk factors can be helpful to prevent the development of CKD.

Literature reviews And research evidences show that there are two major known risk factors:

1. Monosodium glutamate (MSG) and
2. Fructose.

MSG is the sodium salt of glutamic acid. It is used for food additives and flavor enhancers in many industrial processed foods and cooked foods in restaurants and family kitchens. Research evidences reveal that it can induce oxidative kidney damage, increase glomerular hyper-cellularity, infiltration of inflammatory cells in the renal cortex, edema of tubular cells, and degeneration of renal tubules. Overconsumption of foods containing MSG can cause hypertensive disorders and CKD. Fructose is a monosaccharide. It can bond with glucose to form sucrose or sugar. Many fruits contain natural fructose and processed foods and drinks contain high-fructose corn syrup.

“High-fructose foods are honey, dried fruit, pears, sugar soft drinks, fruit juices, sweetened fruit yogurt, apple-pie, salad dressing, and sauces”. Overconsumption of these high-fructose foods can cause metabolic oxidative stress, mitochondrial dysfunction, insulin resistance, endothelial cell damage, vascular inflammation, atherosclerosis and calcification resulting in development of diabetes, hypertensive disorders, coronary heart disease, and CKD.

Nutrition and metabolic health education should be promoted to enhance health literacy and modification of healthier dietary pattern aiming to reduce and avoid overconsumption of MSG and foods containing high fructose. Raising awareness and understanding of these risk factors can reduce the development of CKD among global population.

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