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Antioxidant effect of vitamin E and 5-aminosalicylic acid on acrylamide induced kidney injury in rats

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Objectives: To explore renal toxicity caused by sub-acute exposure of acrylamide, which is known food toxicant and to study the protective effect of 5-aminosalicylic acid (5-ASA) and vitamin E (vit-E) on acrylamide (ACR) induced renal toxicity.

Methods: This study was conducted at King Fahad Medical Research Centre, King Abdulaziz University, Jeddah, Kingdom of Saudi Arabia, between August and November 2015. A total of 49 adult Wistar rats (250±20 g) aged 60 days were kept in a controlled environment and used in the present study. The rats were divided into 7 groups (control, ACR alone, ACR+5-ASA, ACR+vit-E, ACR+ASA+vit-E, vit-E alone and ASA alone). After 5 days of ACR oral gavage treatment, the rats were observed for 24 hours then killed. Histopathology for the kidney and lactate dehydrogenase assay were carried out.

Results: Acrylamide produced significant pathological changes in the kidney with acute tubular necrosis in the distal tubules that could be reversed by concomitant injection of rat with 5-ASA. Together with vitamin E, 5-ASA, showed maximum renal protection. No statistically significant difference was observed in either body weights or lactate dehydrogenase activity of ACR treated rats.

Conclusion: Acrylamide exposure leads to adverse clinical pathologies of renal tubules, which were reversed by a concomitant treatment with 5-ASA and vitamin-E.

Biography

Nisreen Rajeh has completed her PhD from Surrey University, UK and Postdoctoral studies from KAU University School of Medicine. She has published more than 10 papers in reputed journals.

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