Effect of Ellagic Acid on Some Trace Elements (Fe, Cu, Zn) and Fatty Acid Levels in Carbon Tetrachloride (CCI\textsubscript{4}) Induced Rat Kidney Damage

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Abstract

In this study effect on tissue fatty acid and some trace element levels in carbon tetrachloride (CCI\textsubscript{4}) induced rat kidney damage. In each group 7 male Wistar albino (250-300 gr) rats were included in 4 groups. Control group: Isotonic saline was administered for 7 days. Carbon tetrachloride group: 0.5 ml/kg CCI\textsubscript{4} was administered for 7 days i.p. Ellagic acid group: Ellagic acid was administered at 5 mg/kg/day for 7 days orally once a day. Carbon tetrachloride+ellagic acid group: 0.5 ml/kg CCI\textsubscript{4} i.p. and 5 mg/kg/day oral Ellagic acid were administered for 7 days. Rats were anesthetized at the end of 7\textsuperscript{th} day and kidney tissue samples were obtained. Following extraction procedure, tissue fatty acid content was determined with gas chromatography (GC) and Fe, Cu and Zn element content was determined with ICP-OES. Analysis results showed that: Myristic acid (C14:0) level decreased in CCI\textsubscript{4} group compared to control group (p<0.05), Stearic acid (C18:0) level increased in CCI\textsubscript{4} administered group compared to control group (p<0.05). Oleic acid (C18:1) level decreased in CCI\textsubscript{4} and Ellagic acid administered group compared to control. Kidney tissue trace element levels show that; Fe level increased in CCI\textsubscript{4}+EA administered group compared to control and CCI\textsubscript{4} groups (p<0.05; p<0.01). Zn levels decreased in CCI\textsubscript{4} administered group compared to control significantly (p<0.01). Cu level in kidney tissue revealed a decrease in CCI\textsubscript{4} administered group compared to control and an increase in EA and CCI\textsubscript{4}+EA administered groups. As a result; Ellagic acid which is used as a potent antioxidant may be important against oxidative stress and free radicals and may be a reference for further studies.

Keywords: Ellagic acid, Fatty acid, Carbon tetrachloride

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