

Paraoxonase 1 (PON 1) Arylesterase and Lactonase Activities, Polymorphism and Conjugated Dienes in Gastroenteritis in Paediatric Population

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Abstract : Gastroenteritis, the third leading killer of children in India today is responsible for 13% of all deaths in children <5 years of age and kills an estimated 300,000 children in India each year. We decided to investigate parameters which can help in early disease detection and prompt treatment. Serum paraoxonase is calcium dependent esterase which is widely distributed among tissues such as liver, kidney, and intestine and is located in the chromosomal region 7q21.3 22.1. Studies show the presence of excessive reactive oxygen metabolites and antioxidant imbalance in the gastrointestinal tract leading to oxidative stress in gastroenteritis. To our knowledge, this is the first ever study done. The objective of present study is to investigate the role of paraoxonase 1 (PON 1) status i.e arylesterase and lactonase activities and Q192R polymorphism and conjugated dienes, in gastroenteritis of paediatric population. The study and control group consists of 40 paediatric patients with and without gastroenteritis. Paraoxonase arylesterase and lactonase activities were assessed and phenotyping was determined. Conjugated dienes were also assessed. PON 1 arylesterase activities in cases (61.494 ± 13.220) and controls (70.942 ± 15.385) and lactonase activities in cases (15.702 ± 1.036) and controls (17.434 ± 1.176) were significantly decreased ($p < 0.05$). There is no significant difference of phenotypic distribution in cases and controls. Conjugated dienes were found significantly increased in patients (0.086 ± 0.024) than the control group (0.064 ± 0.019) ($p < 0.05$). Paraoxonase 1 activities (arylesterase and lactonase) and conjugated dienes may be useful in risk assessment and management in gastroenteritis in paediatric population.

Keywords : paraoxonase 1 polymorphism, arylesterase, lactonase, conjugated dienes, p-nitrophenylacetate, DHC

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