Republic of Iraq
Ministry of Higher Education
& Scientific Research
AL-Muthanna University
College of Science
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Molecular study of Norovirus and TNF-Alpha polymorphism in Children with Acute Gastroenteritis Infection in Al-Muthanna Province

A Thesis Submitted to the Counical of collage of Science /Al Muthanna University as Partial Fulfillment of the Requirements for the Degree of Master of Science in Biology

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B.Sc. Biology/ 2016

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2022A.D 1443A.H

Abstract

Acute gastroenteritis remains a global public health problem. The current study is designed to determine the rate of human Norovirus infection among children with gastroenteritis in AlMuthanna Governorate. Real Time PCR `was used to evaluate genogroup 1(GGI) and genogroup 2(GGII) among study population according to the different parameters such as age and gender. The association between the rate of infection and TNF-α gene polymorphism in the time of infection was determined by Tetra ARMS PCR technique. This study is conducted on patients with gastroenteritis who attended to the Teaching Hospital for Maternity and Children in AlMuthanna City, between November 2020, and April 2021. A total of 100 children under the age of five years (52 males and 48 females) were chosen randomly during the study period. Stool samples were collected from each patient and stored frozen at -70 °C until used for viral extraction and RT-PCR for determination of human Norovirus I and II genotypes in human stool samples. The polymerase chain reaction was conducted after RNA extraction among positive samples from studied community. The results of this study showed that, the rate of human Norovirus infection was 26% (13 out of 50) samples by RT-PCR assay; The maximum positive results were 7 (14%) in age group (1-10) months while the minimum positive cases were 2 (4%) in age group (21-48) months. The infection among males was (53.8%) higher than females (46.2%). The results of Tetra ARMS -PCR after DNA extraction for patients and amplification by the previous method there are three genotypes for G/G among patients compared with A/A were two results while there no result in control groups .Thus ,association and both homozygous as risk factor for development HNV infection