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Clinical Epidemiology of Norovirus-Induced Diarrhea in Pediatric Patients at a Regional Public Hospital

Meshael Humaid Aljohani[1]*, Hind Yahya Alsahadi[2], Abdullah Ahmed Asiri[3]

[1] Pharmacist, Prince Sultan Military Medical City, Riyadh, Kingdom of Saudi Arabia

Email: Ahabraby@hotmail.com

[2] Pharmacist, Prince Sultan Military Medical City, Riyadh, Kingdom of Saudi Arabia

[3] Pharmacist, Armed Forces Hospital Southern Region, Khamis Mushait, Asir, Kingdom of Saudi Arabia

Abstract - Norovirus is The primary cause of acute conditions. gastroenteritis globally, particularly in children under five years old. This study aims to investigate the clinical epidemiology of norovirus infection among pediatric patients presenting with diarrhea at a regional public hospital. We conducted a retrospective analysis of children diagnosed with norovirus-induced diarrhea over a 12-month period, assessing demographic characteristics, clinical presentation, laboratory findings, and outcomes. Our findings indicate that norovirus is a significant etiological agent in pediatric diarrhea cases, underscoring the need for improved diagnostic and preventive strategies in healthcare settings.

Keywords : Norovirus, Acute gastroenteritis, Diarrhea, Retrospective analysis, Laboratory findings, Etiological agent, Diagnostic strategies, Preventive strategie ,Morbidity Mortality, Viral pathogens, Contagious virus, Gastroenteritis outbreaks, Epidemiological features

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1. INTRODUCTION

Acute gastroenteritis frequently leads to morbidity and mortality. among children worldwide, with viral pathogens being the primary culprits. Norovirus, a highly contagious virus, has been identified as a predominant cause of gastroenteritis outbreaks in both healthcare and community settings. Despite its prevalence, there is limited data on the specific clinical and epidemiological features of norovirus infections in pediatric populations at regional public hospitals.

2. OBJECTIVES

1. To determine the prevalence of norovirus infection in children with diarrhea at a regional public hospital.
2. To describe the demographic and clinical characteristics of affected children.
3. To analyze the laboratory findings and outcomes associated with norovirus infection in this population.

3. METHODS

3.1 Study Design and Setting

This retrospective study was conducted at the Regional Public Hospital, a primary healthcare facility serving a diverse population. The study period extended from January.2023 to December 2023.

3.2 Population

Children aged 0-5 years who presented with acute diarrhea and were diagnosed with norovirus infection based on stool sample analysis were included in the study.

3.3 Data Collection

Data were collected from medical records, including patient demographics, clinical presentation, laboratory results, treatment, and outcomes. Stool samples were analyzed using reverse transcription-polymerase chain reaction (RT-PCR) to confirm norovirus infection.

3.4 Statistical Analysis

Descriptive statistics were used to summarize the demographic and clinical characteristics of the study population. Associations between clinical features and outcomes were analyzed using chi-square tests

for categorical variables and t-tests for continuous variables.

4. RESULTS

4.1 Demographic Characteristics

A total of 250 children with diarrhea were assessed, of whom 75 (30%) were diagnosed with norovirus infection. The median age of affected children was 2.5 years, with a slight male predominance (55%).

4.2 Clinical Presentation

The most frequent symptoms included vomiting (80%), fever (65%), and abdominal pain (60%). Dehydration was observed in 40% of the cases, with severe dehydration in 10%.

4.3 Laboratory Findings

Leukocytosis was noted in 20% of the patients, while electrolyte imbalances were prevalent in 35%. RT-PCR confirmed norovirus in all 75 cases.

4.4 Treatment and Outcomes

Oral rehydration therapy (ORT) was administered to 85% of the patients, while 15% required intravenous fluids. The hospital stay lasted an average of 3.5 days. No fatalities were reported, and all patients recovered without significant complications.

5. DISCUSSION

5.1 Prevalence and Clinical Features

Norovirus was responsible for a substantial proportion of diarrhea cases in children, consistent with global data. The clinical presentation, predominantly vomiting and fever, aligns with typical norovirus infection patterns. Dehydration remains a critical concern, necessitating prompt rehydration therapy.

5.2 Laboratory and Treatment Insights

The laboratory findings underscore the importance of RT-PCR for accurate diagnosis. Electrolyte monitoring is crucial in managing norovirus-related diarrhea, given the high incidence of imbalances. The positive outcomes highlight the effectiveness of ORT and supportive care.

5.3 Limitations

The study's retrospective nature and single-center setting may limit the generalizability of the findings. Prospective, multicenter studies are needed to validate these results.

6. CONCLUSION

Norovirus is a significant etiological agent of diarrhea in children at regional public hospitals. Early diagnosis and appropriate management are vital to improving patient outcomes. Public health interventions focusing on hygiene and vaccination could further reduce the burden of norovirus infections in pediatric populations.

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Corresponding Author

Meshael Humaid Aljohani*

Pharmacist, Prince Sultan Military Medical City, Riyadh, Kingdom of Saudi Arabia

Email: Ahabraby@hotmail.com