SARS-COV-2 RT-PCR CYCLE THRESHOLD VALUE AND ITS ASSOCIATION WITH DISEASE SEVERITY AND MORTALITY AMONG PEDIATRIC COVID-19 PATIENTS ADMITTED IN PHILIPPINE CHILDREN'S MEDICAL CENTER

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INTRODUCTION

The impact of **COVID-2019** remains a global concern since the WHO declared it a pandemic in March of 20201. As the disease itself continues to evolve, understanding its pathogenesis and subsequently, the tests done and the interpretation of the results also remain to be partial. The **SARS-CoV-2 RT-PCR** is the gold standard test for the diagnosis of COVID-19 thus far. However, it is still uncertain whether its **semi-quantitative** capability can be maximized.

OBJECTIVE

This study aims to determine the association of SARS-CoV-2 RT-PCR Ct value with **disease severity** and **mortality** among pediatric COVID-19 patients admitted in PCMC.

KEYWORDS

COVID-19, cycle threshold value, disease severity, mortality, outcome, pediatric patients

METHODS

This is a **retrospective cohort study** of patients aged **0 to 18 years** with confirmed COVID-19 through a **positive SARS-CoV-2 RT-PCR** admitted in PCMC from **September 1, 2020 to August 31, 2022**. A total of **236 patients** who had retrievable Ct values and complete data were included. The cohort was divided into terciles based on their Ct values (**high >30, medium > 20 and low </= 20**). Disease severity was based on the definitions provided by the Interim Guidelines of PPS-PIDSP. Outcomes were designated as survived or mortality. **Chi square test** was done to determine the association between Ct value and disease severity. **Logistic regression** analysis was performed to determine the association between Ct value and mortality.

RESULTS

The **median age** of patients with high Ct value was significantly lower than those with low (p=0.0229) and medium (p=0.0084) Ct values (5, 9 and 9 years, respectively). The **median day of illness** of patients with low Ct value was significantly shorter compared to medium Ct (p=0.0007) and high Ct values (p=0.0118) (3, 5 and 4 days, respectively). Majority of **symptomatic** patients had low to medium Ct values (p=0.020). As for co-morbidities, significant difference was observed for **co-infection** (p=0.022). There was **no significant association between Ct value and COVID-19 severity** on admission and **mortality** even after controlling for confounders.

CONCLUSION & RECOMMENDATION

Ct value did not show a significant association with disease severity and in-hospital all-cause mortality. It may be useful to **account for various interventions** done on the patients that may have affected their **clinical presentation,** altered the **clinical course** or affected the **severity** and **outcome** of the disease.