THE UTILITY OF A CHEST RADIOGRAPH IN SCREENING COVID-19 PATIENTS IN A PEDIATRIC TERTIARY GOVERNMENT HOSPITAL

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Introduction

- RT-PCR remains to be the gold standard in diagnosing COVID-19, but due to long turnaround time, **CXR has been used as a first-line triage tool for screening** COVID-19 patients.
- CXR alone has poor sensitivity to diagnosing COVID-19 and pediatric studies on this are scarce.

Objectives

- To evaluate the **usefulness of a routine CXR** as an adjunct to screening COVID-19, measuring its sensitivity, specificity, accuracy, PPV, and NPV and correlating the signs and symptoms.
- To describe the **radiographic characteristics** seen in pediatric COVID-19 pneumonia

Methods

- A **cross-sectional study** of 259 pediatric patients with COVID-19 signs and symptoms, baseline CXR and SARS-CoV2 RT-PCR tests.
- Correlation of signs and symptoms with CXR findings to RT-PCR positivity was determined using **univariate and multivariate logistic regression analysis.**

Results

- **35** patients (15%) were COVID-19 positive on RT-PCR.

CXR results	**Positive RT-PCR**	**Negative RT-PCR**
Pneumonia	22 (62.9%)	136 (60.7%)
Others/Normal results	13 (37.1%)	88 (39.3%)
Total	**35**	**224**
	Values	**95% CI**
Sensitivity	62.86	44.92 to 78.53
Specificity	39.29	32.85 to 46.01
Accuracy	42.47	36.34 to 48.74
Positive Predictive Value	13.92	10.94 to 17.57
Negative Predictive Value	87.13	81.03 to 91.48
Positive Likelihood ratio	1.04	0.79 to 1.36
Negative Likelihood ratio	0.95	0.60 to 1.50

- **Ground glass opacities** was the most common finding (45.5%), seen in **both inner lung zones** (90%).
- None of the variables (CXR and signs and symptoms) could predict RT-PCR positivity, though the symptom of **bleeding had an OR of 2.37** (95% CI 0.9-6.5, p=0.919).

Conclusion & Recommendation

- RT-PCR is still the gold standard for COVID-19 diagnosis.
- A finding of pneumonia on CXR may be an adjunctive screening tool, and correlating it with the patient's clinical symptoms will be more beneficial.
- Re-evaluation of the CXR by another radiologist may provide additional strength to this study.

Keywords

COVID-19, coronavirus, RT-PCR, pediatric, children, radiograph, chest x-ray, CXR, screening, sensitivity, specificity, accuracy