

12.05 COVID-19 infection and lung function in children with Cystic Fibrosis. A comparison of pre and post infection FEV1.

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Background: No studies have evaluated the effectiveness of COVID-19 vaccines in children with Cystic Fibrosis. This study aims to characterise the impact of COVID-19 infection on FEV1 (% predicted) in children with CF and determine if COVID-19 vaccine had an effect on FEV1.

Methods: Ethical approval granted for a retrospective single-centre study in UHL. The population was children ≤ 18 years with confirmed diagnosis of CF. If COVID-19 infection was identified, the following data points were collected; most recent FEV1 before COVID-19, most recent FEV1 after COVID-19, best FEV1 the following year, COVID-19 vaccination status at time of infection.

Results: 86 charts reviewed, n=50 contracted COVID-19, n=7 contracted COVID-19 twice. 40/50 could perform spirometry and were included in analysis (Table 1)

Mean FEV1 increased in both vaccinated (n=32) and unvaccinated (n=8) 1 year after COVID-19 infection (Figure 1). Welch's unpaired *t*-test showed no statistically significant difference between the two groups FEV1% predicted one year after COVID-19 infection (p=0.84). One-way ANOVA did not demonstrate a significant change in FEV1 over the study duration (p=0.36)

Conclusions: There was no statistically significant difference in FEV1 between the two groups. The introduction of elexacaftor-tezacaftor-ivacaftor (Kaftrio[®]) is a confounder in this study and likely contributed to the improved lung function.

Keywords: Cystic fibrosis, COVID-19, COVID-19 vaccine

Disclosures: Nil

Funding: Nil

Conflict of interest: The authors declare that they have no conflict of interest.

	Vaccinated (n=32)	Unvaccinated (n=8)
<i>Median Age (Interquartile Range)</i>	11 years (6.5)	9 years (6)
<i>Number of COVID-19 infections 2020</i>	1	1
<i>Number of COVID-19 infections 2021</i>	8	4
<i>Number of COVID-19 infections 2022</i>	26	3
<i>Number of COVID-19 infections 2023</i>	4	0
<i>Total infections</i>	39	8

Table 1. Demographics of population

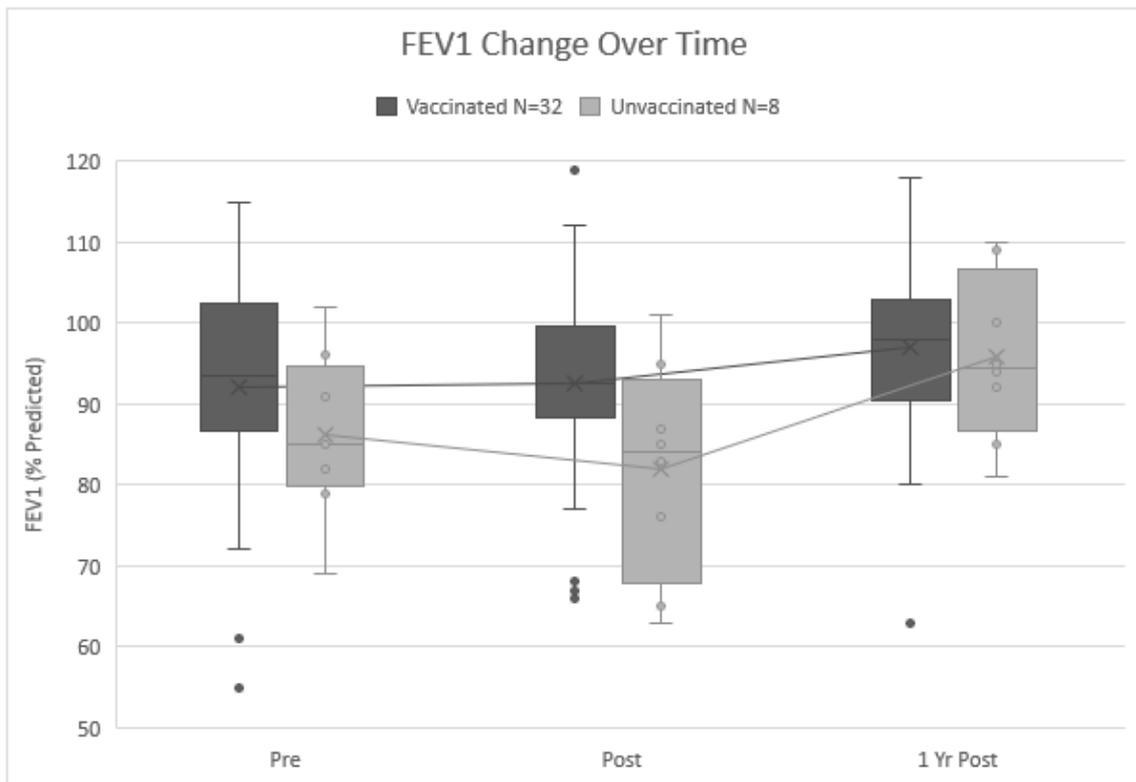


Figure 1. FEV1% Predicted change over time