

Evaluation of left ventricular mechanics in healthy pediatric patients after Covid19 mRNA vaccination



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Background

The Covid-19 pandemic has caused substantial morbidity and mortality over the past two years. The development of a safe and effective vaccine has been the key to restoring normalcy by early 2021. The debate on possible adverse effects on myocardial function in children is unfortunately still open. Few cases of myocarditis and hyper-inflammatory syndrome after COVID-19 mRNA vaccine administration were described in the past year. However, whether COVID-19 mRNA vaccine can induce subtle reduction of myocardial function in children is still unknown.

Purpose

The objective of this study was to evaluate ventricular mechanics, by means of two-dimensional speckle-tracking echocardiography, in healthy children in a short-term follow-up following COVID-19 mRNA vaccine administration.

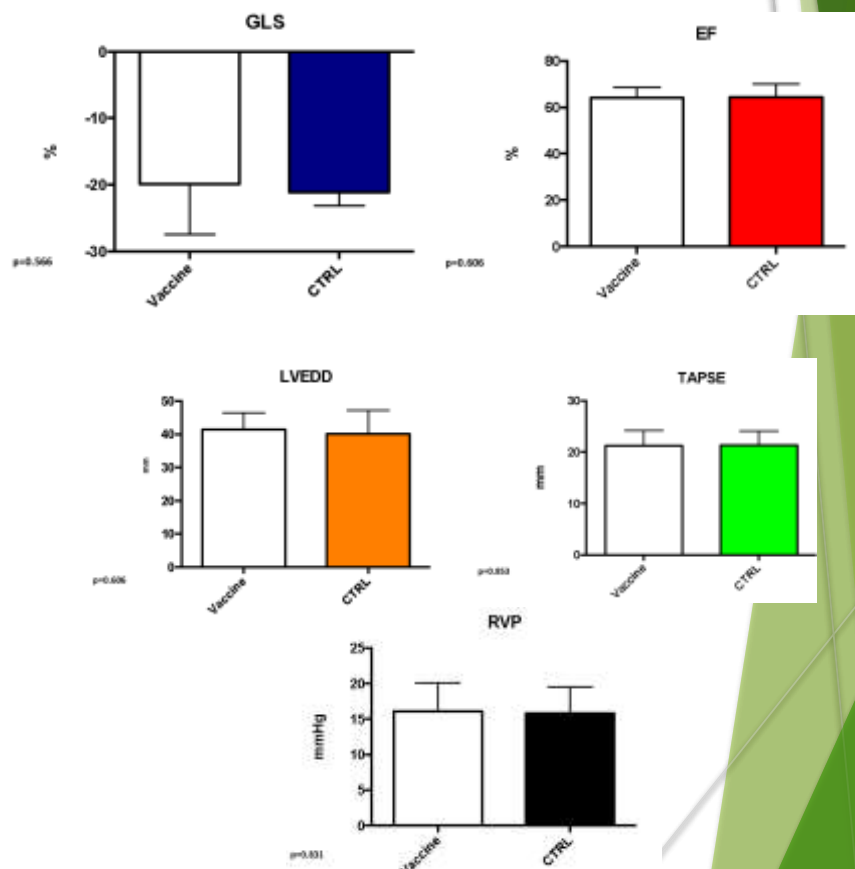
Methods

We analysed a cohort of 39 paediatric patients who underwent COVID-19 mRNA vaccination with Cominarty BioNTech Pfizer vaccine in the previous six months. Patients underwent standard transthoracic echocardiogram and speckle tracking echocardiographic study at our Institution. Thirty-nine age, sex, and body surface area comparable healthy subjects not subjected to vaccination against Covid 19 were used as control group.

Results

No statistical differences were observed in terms of left ventricular end-diastolic (LVEDD) and end-systolic (LVESD) diameters in the two groups ($p=0.606$), even when normalized for the respective Z-Scores. Moreover, the analysis revealed that the mean ejection fraction (EF) of vaccinated patients was similar both in vaccinated children and in controls ($p=0.606$).

Interestingly, also global longitudinal strain (GLS) was similar and not statistical different in the group of vaccinated patients and in CTRLs ($p=0.566$).



Conclusions

In conclusion, there were no significant differences in left ventricular strain and EF between the group of vaccinated patients and the control group. It would be interesting to expand the sample size to provide more reliable data.