

COVID-19 Infection after pediatric heart transplantation in Germany, Austria, and Switzerland

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Background

COVID-19 is a very heterogenous infection that can vary in its course from asymptomatic to fatal. While the course of pediatric COVID-19 infections is mostly asymptomatic or very mild, patients with immunosuppressive therapy are at high risk of a severe infection. We conducted a multicenter survey with pediatric heart transplantation centers in Germany, Austria, and Switzerland (15 centers) to evaluate the risk of a severe COVID-19 infection after pediatric heart transplantation.

Method

Retrospective analyses of all COVID-19 infections between 02/2020 and 06/2021 of patients after pediatric heart transplantation with medical care in one of the German, Austrian or Swiss pediatric heart transplantation centers.

Results

21 patients (9 male) with a mean age of 8.34 ± 5.33 years at time of transplantation and on average 8.33 ± 8.49 years after transplantation suffered from COVID-19 infection. Reasons for transplantation were dilated cardiomyopathy (n=17), restrictive cardiomyopathy (n=2) and congenital heart disease (n=2). The immunosuppressive therapy consisted of tacrolimus (n=17), cyclosporine A (n=3), everolimus (n=10), mycophenolate mofetil (n=11), azathioprine (n=1) and steroids (n=3).

Twelve patients had an asymptomatic COVID-19 infection, the other patients complained about cough (n=3), rhinitis (n=3), fever (n=2), myalgia/fatigue (n=5), diarrhea (n=1), pain (n=2), anosmia (n=3) and loss of taste (n=4). None of the patients showed dyspnea or reduced left ventricular function. Only one patient showed an increase in the degree of tricuspid regurgitation. Eight patients needed therapy in an outpatient setting and only two patients were hospitalized. One of these patients had a positive SARS-CoV-2 testing while on ICU early after heart transplantation. Interestingly this patient had had a COVID-19 infection some weeks before heart transplantation.

None of the patients needed oxygen supply or non-invasive ventilation or invasive mechanical ventilation. None of the patients needed a change of the immunosuppressive medication. No specific signs for graft dysfunction were found by non-invasive testing (echocardiography or electrocardiogram).

Conclusion

After pediatric heart transplantation a COVID-19 infection was very often asymptomatic or a mild infection and did not lead to a graft dysfunction despite the immunosuppressive therapy of the patients.

Number : **00042**

Speaker : **S. Ulrich**

Submission type : **Resume**

Presentation type : **Oral Presentation**

Topic : **13. Heart & lung transplantation**

Conflicts of interest : **no**

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Update : **Tuesday, September 14, 2021 11:14 AM**