Use of in-bed cycling for a patient with central ECMO - a case report

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Introduction

Early rehabilitation of patients in paediatric intensive care (PICU) has been shown to be important in reducing the risk of post-intensive care syndrome [1]. Rehabilitation of patients on ECMO can often be challenging due to the risk of cannula dislodgement. As a result, these patients often have prolonged periods of immobility with associated problems. A recent UK and Ireland consensus document has been developed to offer guidance [2]. This case report describes mobilisation of a patient on central ECMO using an in-bed bicycle.

Case Summary

Patient A was a 17-year-old male who underwent a RV-PA conduit in July 2021 for infective endocarditis. Following the procedure, the patient was placed on central VA ECMO after struggling to wean from bypass due to hypotension and rising lactate. After 10 days, the patient had stabilised so the MDT began to discuss ways of commencing rehabilitation. Initially, rehabilitation consisted of range of movement exercises during awake periods. This was tolerated well so a risk assessment was carried out to use the in-bed bicycle. This was done through collaboration of the PICU MDT to ensure safety of lines and ECMO cannula. The bicycle was used passively to begin with and progressed to active pedalling. It was used when the patient was still on central ECMO and continued when ECMO was changed to neck cannulation. The patient used the bicycle 15 times over a three-week period and there were no adverse events.

Consent gained for use of photograph.

Conclusion

With appropriate risk assessment and MDT collaboration, patients who are bedbound on centrally cannulated ECMO can be mobilised using an in-bed bicycle. This allows patients to begin rehabilitation earlier and help reduce the effects of immobility.

References

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[2] Shkurka, Child, Balls, Melkuhn, Carter, Compton, Marscheider, McConnel, Meenaghan, Milburn, Nugent, Peabody, Rimmer. Early rehabilitation and mobilisation of neonatal and paediatric ECMO patients: A UK and Ireland consensus document for best practice. [unpublished manuscript]

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