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ELECTRICAL HEART DISEASE IN AIRCREW: EVALUATION AND RISK ASSESSMENT

TROUBLES DU RYTHME ET DE LA CONDUCTION CHEZ LE PERSONNEL NAVIGANT: EVALUATION DU RISQUE

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Introduction: Electrical disorders of the heart are variable and consist of bradyarrhythmias, conduction disturbances, supraventricular and ventricular tachyarrhythmias, atrial and ventricular ectopy etc. Some of them are caused by structural heart disease or genetic disorders, others occur without any underlying disease. Risk for aircrew can be diverse. It can be minimal in asymptomatic ectopy. Other arrhythmias can lead to impairment by distraction or hemodynamic symptoms. Most severe risks are sudden incapacitation or even sudden cardiac death. For some arrhythmias there are therapeutic options, which are able to restore aeromedical fitness at least with certain restrictions and after a certain observation period.

Background: Aircrew with electrical disorders of the heart have to undergo thorough evaluation with an emphasis on risk assessment. Different levels of investigation may for example consist of medical history including family history, physical examination, ECG, stress ECG, Holter monitoring, event recording, invasive electrophysiological studies, genetic and pharmacological testing. Underlying diseases have to be excluded or evaluated by examinations like laboratory tests, echocardiography, CT, MRI, or invasive coronary angiography. Therapeutic options like drugs, catheter ablation or pacemaker implantation are available for some arrhythmias and can sometimes restore aeromedical fitness under certain circumstances.

This paper will describe different levels of electrophysiological evaluation for electrical heart disease with an emphasis on risk assessment. Some electrical disorders will be taken as examples. Examination strategies for underlying diseases will briefly be explained. Therapeutic options for certain arrhythmias and their impact on aeromedical fitness will be mentioned.

Summary: The term electrical heart disease covers a large variety of arrhythmias, conduction disturbances, and genetic disorders, and is a very challenging field for every aeromedical examiner. Some knowledge about different diseases, about evaluation and risk assessment strategies, and about therapeutic options and their impact on aeromedical fitness is mandatory.