First episode of ventricular fibrillation in 84-years old male with long QT 2 syndrome: a case report

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Background:
Congenital long QT syndrome (LQTS) is known as a disease that can lead to ventricular arrhythmias and an increased risk of sudden cardiac death in young people, but extremely rare in elderly people to occur ventricular fibrillation (VF) as a first episode. We experienced a case of an elderly male with a first episode of loss of consciousness owing to torsades de points (TdP).

Case description:
An 84-year-old-man presented with syncope after urination. His medical history was hypertension and asthma, but no history of syncope ever. His electrocardiogram in 2017 showed a slight QT prolongation (QTc=505msec). After the hospitalization, no medication inducing QT prolongation, no blood test showing electrolyte abnormalities, and no abnormal findings in echocardiography were found. He had then a loss of consciousness again during the hospitalization, and electrocardiogram caught incessant Tdp, which was caused by R on T with short-long-short (SLS) sequences due to sick sinus syndrome (heart rate=50bpm, QTc=596msec). Coronary angiogram could not detect any myocardial ischemia, and therefore intracardiac defibrillator (ICD) was implanted for secondary prevention. QT duration was measured after ICD implantation by every 10 beats/minutes between 40 beats/minutes and 110 beats/minutes, and QT/RR slope was calculated 0.23. The genetic testing revealed KCNH2 gene mutation (LQTS type2).

Conclusion:
In this case, prolonged QT time revealed with aging and SLS sequences due to sick sinus syndrome triggered VF as a first attack in an older patient with LQT2 syndrome.
Figure

Torsades de Pointes (TdP)

VPC

R on T

Short-long-short sequence