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Brugada syndrome and its relation to mitochondrial cardiomyopathies

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Cardiomyopathy is a progressive myocardial disease or heart muscle. In most cases, the heart muscle weakens and the ability to pump blood to other parts of the body decreases. Cardiomyopathy can lead to irregular heartbeat, heart failure, disorders and diseases of the heart valves or other complications. Some effective measures are there to resolve this problem. Cardio myopathy has many causes that the most common one is the heart muscle is stretched and due to this stretching, the blood pumping become very weak. In the meantime, some nucleotide changes in molecular level at the mitochondrial are led to Brugada syndrome that one of the genetic reasons for sudden cardiac deaths is as a result of ventricular fibrillation. At the molecular level mutations that occur in the SCN5A gene that it is encoding the alpha subunit of the sodium channels of the heart cells, they lead to this syndrome. Any disorder that occurs in the mitochondrial respiratory chain leads to a defect in the function of the target tissue. As you know, the heart is one of the organs that needs a lot of energy to function and energy deficiency in cells affects ion channels including this complication cause heart disorders. Cytochrome C is part of the mitochondrial transduction of electrons and respiratory chain that it reconstructs H_2O and the nucleotide defects that occur in this mutation, it encompasses a wide range of diseases including myopathic disturbances to severe multi-systemic diseases. In accordance with the provided explanations, there is a direct correlation between the disturbances of the sodium channel that they play an important role in action potential of cardiac cell and this syndrome and created mutations cause to decrease the function of sodium channels in the heart muscle and it prevents the precise function of the blood supply system, because the heart is heavily dependent on the oxidative energy produced by the mother's inherited mitochondria.

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