

Long QT Syndrome, Women And Pregnancy

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Males and females are different, viva la difference. Beginning in adolescence, men generally become taller than women, develop larger and stronger skeletal muscles, have larger and heavier hearts, and have slightly slower heart rates than women. The electrocardiogram also takes on a different pattern during adolescence in healthy males versus females. For example, the electrical recovery of each heart beat that we measure on the electrocardiogram as the QT interval becomes relatively longer in females than males during adolescence. Clearly, many of these changes are due to the changing hormonal environment that takes place in men and women during the teenage years. So what do these differences in the sexes have to do with the Long QT Syndrome (LQTS)? LQTS is a genetic disorder that affects the electrical activity of the heart and is characterized by exaggerated prolongation of the electrical recovery of each heart beat (prolonged QT interval on the electrocardiogram) and can be associated with dangerous heart rhythms that can result in passing out spells (syncope) and sudden death. The disorder is due to mutations in genes that regulate the flow of sodium and potassium ions across the cell membranes of the heart. The gene mutations that cause LQTS are not located on the sex chromosomes, and thus this disorder should affect males and females, men and women, equally. However, this is not the case. From our experience in the International Long QT Syndrome Registry involving over 1,200 families and more than 7,000 patients with this disorder, we have observed that males are more likely than females to experience passing out spells during the first 10 years of life, with females having more LQTS-related spells during adolescence and into their adult years than their male counterparts. It is generally thought that the greater frequency of syncope in adult women than men with LQTS relates to the effects of sex hormones on the heart in women.

Our research group had previously studied the effects of pregnancy in women with LQTS. We found that that the likelihood of a woman experiencing an LQTS-related passing-out spell was considerably greater in the 9-month period after the birth of a child than in the 9 months during pregnancy or in the 9 months before pregnancy. The reason for the increased risk after pregnancy was not entirely clear, but we hypothesized that it might be due to post-partum stress and/or to the changing levels of the female estrogen and progesterone hormones after pregnancy. More recently, we investigated the clinical course of over 800 women during the ages 15 to 40 years. Women who had a syncopal event before age 15 were six times as likely to experience a syncopal event during their adult years than those who had not had syncope before adolescence. Women who had one or more pregnancies had a modest 30% increased risk of experiencing passing out spells during their adult years than those who never became pregnant.

We now have a better understanding of the factors associated with LQTS-related syncope during a woman's reproductive years. The major risk factor is a history of syncope in pre-adolescence. Pregnancy adds only a small risk. Prophylactic therapy with beta-blockers is very effective in reducing the likelihood of experiencing syncope or life-threatening heart rhythm disorders after pregnancy. We strongly recommend that all women who have LQTS should be maintained on beta-blocker medication throughout their adult years, and this medication should be continued before, during, and after pregnancy.

Additional Information About LQTS

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