Pregnancy & Long QT Syndrome

Influence of Pregnancy on the Risk for Cardiac Events in Patients With Hereditary Long QT Syndrome

Long QT syndrome and pregnancy.

Identification of a common genetic substrate underlying postpartum cardiac events in congenital long QT syndrome.

Long QT Syndrome-Gender Associated Symptoms and Frequency
of Cardiac Events During Pregnancy and
the Post-Partum Period

Studies
show there are significant gender differences in genotyped LQTS patients
relative to age of first episode, syncope, cardiac arrest and sudden
death. According to Emanuela H. Locati
et.al. in the paper, "Age and Sex-Related Differences in Clinical
Manifestations in Patients with Congenital Long-QT Syndrome", males have a
higher risk of cardiac events (meaning syncope or blackout spells, cardiac
arrest and sudden death) during childhood (with an average earlier age of onset
in males at 8 years old vs.14 years in females), through puberty. Studies reveal females have an increased risk
relative to males during adulthood.
Where sudden death occurred, males died on average at 13 years whereas
females at 20 years. Males had a 32 %
incidence of sudden death as a first episode in comparison to 9% in women. Studies showed that among referred
subjects
to the LQTS Registry, "only a few males had a first cardiac event after 15
years of age whereas about half of the females had a first cardiac event after
15 years of age." (1)

The
paper by Eric J. Rashba, et.al., "Influence of Pregnancy on Risk for Cardiac
Events in Patients with Hereditary Long -QT Syndrome", reviews the findings of
a retrospective study of 422 LQTS women, (111 probands or first identified
family member with LQTS and 311 first degree female relatives) who have
experienced at least one or more pregnancies.
Symptom information on these subjects was reviewed for the 40-week
pregnancy period plus the 40 weeks prior to pregnancy and the 40 weeks post
pregnancy or post-partum period.
Analysis showed of the 111 probands, 26 (23.4%) had cardiac events
during the post-partum period, with 10 (9%) during pregnancy and 4 (2.8%) in
the pre-pregnancy period. (Only 2
patients had cardiac events during delivery with the remaining 24 experiencing
events during the 40 weeks post-partum.) (2)

Thus,
this study implicates that probands were at a significant risk for cardiac events during the post-partum period; additionally nearly 10% having a first cardiac event during this time frame.
However, Beta-blocker treatment was also noted to associate with meaningful reduction of risk for cardiac events among probands. Also mentioned was that Beta-blockers studied extensively in hypertensive patients during pregnancy noted that maternal treatment with specifically "propranolol was infrequently associated with neonatal bradycardia, respiratory depression, hypoglycemia and intrauterine growth retardation in several small, uncontrolled studies....fetal malformations post maternal treatments with (propranolol, atenolol and metoprolol) were not observed." (2; for further reading refer to referenced articles in this manuscript on Beta-blocker treatment.)

In over 10 years of personal retrospective communications with LQTS patients and family members regarding cardiac events during the post-partum period, (in general, cardiac arrests and/or sudden deaths occurred prior to LQT diagnosis and thus most women were not on Beta-blocking medications), several commonalities have been noted:

1.
All patients had their events in association with severe anxiety, illness, sleep deprivation, baby blues or depression. (Sleep deprivation being the most common or in combination with one or more previously named precipitators.)

2.
Loud and/or unexpected noise---alarm clock, or sudden arousal from sleep.

3.
Inattention to proper diet, poor eating habits or extreme weight loss.

4.
Vigorous or excessive exercise.

5.
Over the counter medications (particularly weight reducing aids) which were later discovered to prolong the QT-interval or alter blood electrolyte concentrations.

Suggestions
for the 40-week post-partum period and beyond:

1.
Maintain strict
compliance with prescribed Beta-blocker medications. (3, 4)

2.
Avoid all drugs
or medications implicated to cause further prolongation of the QT-interval.

3.
Adhere to a
healthy diet.

a.
Increase dietary
intake of potassium rich foods.

b.
Reduce
consumption of sugary rich foods.

c.
Precautionary
avoidance of drinks and foods containing caffeine and/or alcohol are suggested (some clinical studies suggest a pro-arrhythmia effect with excessive ingestion of caffeine and alcohol).

d.
Avoid grapefruit,
grapefruit juices and Green Tea (the flavonoid contained in the chemical make-up of grapefruit and green tea is known to specifically inhibit function of the cardiac HERG ion channel when consumed in large volumes). (5,6)

e.
Consider the

addition of omega-3 oils to diet. (7-9)

4.
Get plenty of
rest.

5.
Exercise sensibly
and with caution.

6.
Remove all alarm
clocks or telephones from resting areas.
(3)

7.
Reduce as much as
possible, stress and anxiety.

8.
Seek help to
relieve problems of depression, but be cautious in taking prescribed medications
for depression.

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Long
QT syndrome and pregnancy.

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W, Andrews ML, Qi M, Robinson JL, Goldenberg I, Ackerman MJ, Benhorin J,
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OBJECTIVES: This study was
designed to investigate the clinical course of women with long QT syndrome
(LQTS) throughout their potential childbearing years. BACKGROUND: Only limited
data exist regarding the risks associated with pregnancy in women with LQTS.
METHODS: The risk of experiencing an adverse cardiac event, including syncope,
aborted cardiac arrest, and sudden death, during and after pregnancy was
analyzed for women who had their first birth from 1980 to 2003 (n = 391).
Time-dependent Kaplan-Meier and Cox proportional hazard methods were used to
evaluate the risk of cardiac events during different peripartum periods.

RESULTS: Compared with a time
period before a woman's first conception, the pregnancy time was associated
with a reduced risk of cardiac events (hazard ratio [HR] 0.28, 95% confidence
interval [CI] 0.10 to 0.76, p = 0.01), whereas the 9-month postpartum time had
an increased risk (HR 2.7, 95% CI 1.8 to 4.3, p < 0.001). After the 9-month
postpartum period, the risk was similar to the period before the first
conception (HR 0.91, 95% CI 0.55 to 1.5, p = 0.70). Genotype analysis (n = 153)
showed that women with the LQT2 genotype were more likely to experience a
cardiac event than women with the LQT1 or LQT3 genotype. The cardiac event risk
during the high-risk postpartum period was reduced among women using
beta-blocker therapy (HR 0.34, 95% CI 0.14 to 0.84, p = 0.02).

CONCLUSIONS: Women with LQTS have
a reduced risk for cardiac events during pregnancy, but an increased risk
during the 9-month postpartum period, especially among women with the LQT2
genotype. Beta-blockers were associated with a reduction in cardiac events
during the high-risk postpartum time period.

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