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Commentary

Mitochondrial Genetic Inheritance Disorder in Pregnant Women

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COMMENTARY

Mitochondrial genetic inheritance disorders refer to a group of condition that affects the power house of the cell, the mitochondria. This occurs due to changes in either the mitochondrial DNA or nuclear DNA that lead to dysfunction of the mitochondria and inadequate production of energy. Those diseases caused by the mutations in the mitochondrial DNA are transmitted by maternal inheritance, while those cause by nuclear DNA may follow autosomal dominant or recessive or X-linked pattern of inheritance [1].

This disease usually affects those organs which have high energy demand and pregnancy being that physiologically state that requires a lot of energy production; this disease can affect the mother as well as the fetus in many ways. The complications that can occur are gestational diabetes mellitus, pre-eclampsia and difficulty in breathing in the mother. In the case of the newborn clinical syndromes such as mitochondrial encephalopathy, lactic acidosis and stroke like episodes, maternally inherited deafness and diabetes, and progressive external opthalmoplegia are also seen.

During pregnancy fatigue is one of the major things that women go through (**Figure 1**). This disorder can lead to intensifying fatigue leading to myalgia and even mild exercise intolerance [2].

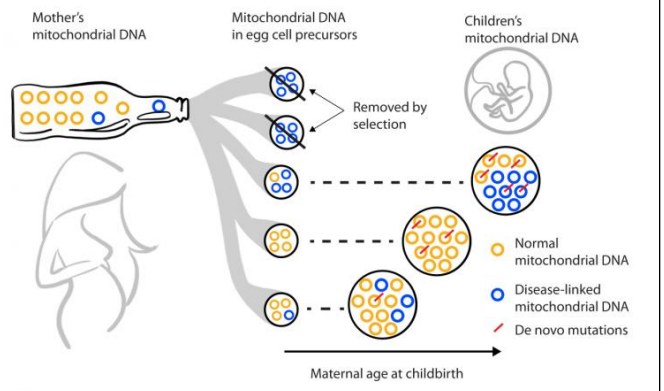

Figure 1: Genetic disorder can lead to intensifying fatigue leading to myalgia.

The most common genetic point mutation for adult mitochondrial disease is mutation of m.3243A>G in MTTL1 gene [3]. Pregnancies of women who had m.3243A>G had significantly increased risk of occurrence of Gestational diabetes mellitus, breathing difficulties and hypertension. In the time of delivery due to presence of low ATP about almost half of these women undergo emergency caesarean section for delivery. Babies of this mother are usually born preterm and have correspondingly low birth weights. These complication though not nil but are less significant in women other forms of mitochondrial defect than women with m.3243A>G.

One of the appropriate reproductive treatments that can be considered is the novel mitochondrial donation technique.

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