

Statins improve birth outcomes for mothers with an autoimmune disorder

July 25 2016

A new statin treatment shows promise for reducing premature births and increasing babies' chances of survival for mothers with an autoimmune disease. The small preliminary study of 21 women, published in the *Journal of Clinical Investigation*, found that all babies of mothers treated with statins survived compared with the standard treatment group; maternal health also improved after treatment with statins.

Antiphospholipid syndrome (APS) is an autoimmune disorder where the body produces abnormal antibodies called antiphospholipid antibodies that mistakenly attack cell membrane components called phospholipids.

Preeclampsia is a condition that develops during pregnancy as a consequence of abnormal development of the placenta, the organ that connects the developing foetus to the uterine wall to allow nutrient and oxygen uptake. Preeclampsia compromises the mother's health by increasing blood pressure and affecting the kidneys that leak proteins into the urine (proteinuria). It is a serious pregnancy complication that can result in the death of the mother and foetus.

APS increases the risk of [preeclampsia](#) and [intrauterine growth restriction](#) (IUGR) in pregnancy. During pregnancy, antiphospholipid antibodies can affect the development of the placenta and thus diminish the blood flow across the placenta. This can result in reduced foetal growth in a quarter of pregnancies and foetal distress leading to premature birth in half of pregnancies. Premature birth increases the risk of the baby having health problems or dying. For many [women](#) with the

disorder, current treatments aren't effective in improving pregnancy outcomes.

The researchers, from King's College London and the University of Thessaloniki in Greece, recruited eleven pregnant women with antiphospholipid syndrome. The women were treated with a type of statin that does not reach the foetus - called pravastatin - in addition to the current standard treatment for their condition.

Statins are normally used to lower the risk of cardiovascular disease, but are thought to offer protection against inflammation as well as the build-up of cholesterol in the arteries. A number of previous studies have suggested they are safe to take during pregnancy. Pravastatin has also previously been shown to prevent adverse pregnancy outcomes in mouse models of APS and preeclampsia.

The women treated with pravastatin were compared with 10 women with APS who had only received the current standard anticlotting treatment of low dose aspirin and heparin.

All eleven babies in the pravastatin treatment group were born alive, whereas seven of the eleven babies in the standard care group survived beyond birth (of the remainder, three were stillbirths and one baby died 3 hours after birth).

The pravastatin treatment lowered blood pressure and proteinuria, increased placental blood flow and prevented IUGR reducing the rate of [premature birth](#), with eight out of the 11 patients delivering at 36 weeks or later. In the standard care group, emergency C-sections were performed for seven of the women due to foetal distress or maternal health concerns. The median age at birth was 26 weeks in the standard group compared to a median of 36 weeks in the pravastatin group.

The premature babies in the standard care group spent longer periods in the neonatal [intensive care unit](#) and three of the surviving infants had poorer health outcomes, such as neurological and gastrointestinal abnormalities.

Professor Guillermina Girardi, senior author from the Department of Women's Health at King's College London said: 'Many pregnant women with antiphospholipid syndrome do not respond to conventional antithrombotic treatment and face serious complications, such as preeclampsia and severe intrauterine growth restriction, threatening their lives and their babies' lives.

'We found that a drug which has been widely used in the general population to prevent cardiovascular disease appears to help prevent pregnancy complications in women with [antiphospholipid syndrome](#).

'Pravastatin helped to increase [blood flow](#) through the placenta, keeping the baby growing and reducing the symptoms of preeclampsia in the mothers. In the group supplemented by pravastatin, the babies were born alive, healthy, close to full term and showed normal development. In contrast, the group that received only anti-clotting drugs experienced a higher rate of stillbirths and premature births requiring admission to the [neonatal intensive care](#) unit.

'Our study was a small case series that was not randomised and historic controls were used for comparison, so larger randomised clinical trials are needed to fully establish the safety and effectiveness of this treatment before it can be recommended for clinical use. The potential benefits of statin treatment for women who develop preeclampsia without APS are also worth investigating.'

More information: 'Beneficial effects of pravastatin in the management of obstetric antiphospholipid syndrome refractory to

antithrombotic therapy' by Lefkou et al is published in *Journal of Clinical Investigation* on 25 July 2016.

Provided by King's College London

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