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KOFINAS PERINATAL

Providing care to the unborn

UPDATES ON PERINATAL ISSUES AND NEWS ABOUT KOFINAS PERINATAL

Thrombophilia Controversy

What makes it so confusing to most obstetricians to the point that they would rather dismiss it all together to the detriment of thousands of unborn?

Alexander Kofinas, M.D.

Kofinas Perinatal baby of the month

Joseph Michael Comande was born on June 15th, 2009. He weighed 7lbs. 6oz. and was 20 inches long. He is referred to as "the George Clooney of babies" because of his luxuriously thick parted hair and long eye lashes. Joseph's favorite pass times are long strolls in the carriage and leisurely swings. When it comes to meals, Joseph loves nothing more than Mom's cooking (mother's milk). Joseph is a terrific baby!

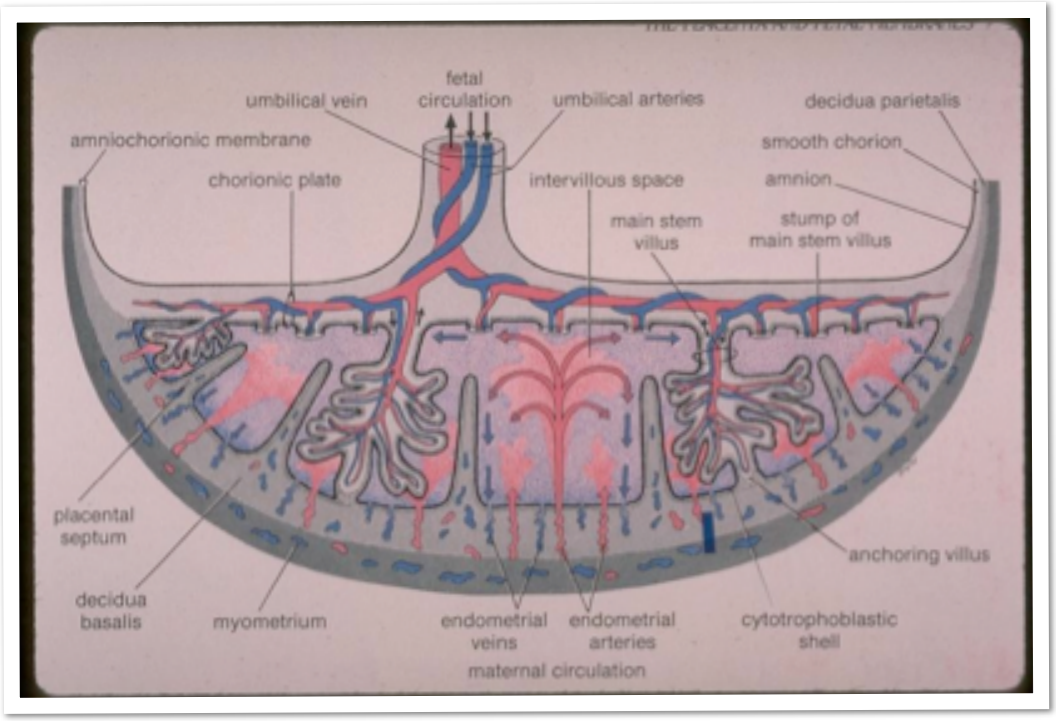
Thrombophilia has been a controversial subject in obstetrics for the last 10 years. Like most controversies, it is the result of misconceptions and incomplete understanding of the condition. The term thrombophilia did not exist before 1997. It was then that a Dutch scientist discovered a genetic mutation affecting the gene that is responsible for the production of Factor V, one of the coagulation factors. Because the discovery took place in the City of Leiden, the gene was named Factor V Leiden gene polymorphism (different than the normal gene). There are more Factor V gene mutations with various names. The most common and dangerous however is the Leiden type. This genetic mutation makes it easier for such individuals to form a clot when otherwise they would not. This scientist used then the combination of two Greek words to form a new term to describe this new condition. The word “thrombos” and the word “philia”. Thrombos means clot and philia means friendship. In other words, an individual that is friendly to forming clots. As a result, the term thrombophilia has been associated with the presence of Factor V Leiden almost exclusively in many physicians mind. In recent years patients with Factor II gene mutation also are classified as thrombophilic. The truth is that these two factors are the most potent and in their presence, the risk for all kinds of clots is

increased, including deep vein thrombosis (DVT), pulmonary embolism (PE), stroke, heart attack etc.

Most physicians and more so, most obstetricians lack understanding when it comes to thrombophilia. It is very common when our patients talk to their family doctors or even cardiologists about thrombophilia to get the response: "thrombo… what?" This is not uncommon among obstetricians also. It should not be surprising then that the subject is controversial. Ignorance of the term is one thing. What is the most important though is that many physicians who believe they know enough in reality know very little. Half knowledge is worse than no knowledge at all. There are several issues that I would like to clarify in order to make it easier to understand the confusion. For most physicians –including obstetricians- the main concern regarding thrombophilia relates to the complications mentioned above, such as DVT. Given that pregnancy is a thrombophilic state on its own merit, during pregnancy women are more likely to develop a clotting disorder. Since such disorders are relatively rare (1 in 1000 pregnant women), it is natural for them to view the risks of thrombophilia as insignificant. At Kofinas Perinatal, we are concerned about the effects of thrombophilia on the placenta 99% of the time. Only 1% of our patients are seen for medical complications of thrombophilia, such as, DVT, PE, ect., and such patients are different due to the fact that we have to pay attention to the medical condition in addition to the placenta related problems.

The placenta is a totally vascular organ. It consists of the thousands of branches of the fetal umbilical vessels as they come into direct contact with the maternal circulation and blood. During the early stages of the pregnancy from conception and up to 24 weeks gestation, fetal cells known as "trophoblastic cells" invade the maternal tissues (the lining of the uterus) and perforate the maternal vessels. As you can see in the adjacent picture, maternal blood comes out of the maternal circulation like an artesian spring. It is this blood that contains all the nutrients that the baby needs in order to build

Schematic of placental anatomy with fetal and maternal circulations



his body. Such nutrients are absorbed by the baby's circulation and via the umbilical arteries go to the baby and are used to build every new cell from scratch. If the baby gets enough iron he/she will build a healthy amount of blood of his own. If he/she gets enough calcium likewise, he/she will develop strong and healthy bones. You get the idea now!

Fetal chromosomes (blue prints)

Every baby much like every house comes with a set of blue prints. These human blue prints are called chromosomes. All normal humans have 46 chromosomes that come in pairs of 23. We get 23 chromosomes from our mother and 23 from our father. These chromosomes contain all the instructions for the building of a brand-new human being. No one as yet can change these plans. If the placenta develops to its normal capacity, then the baby will get all the nutrients necessary to build the body that the blue prints indicate. In other words, under the best circumstances, the baby will be as good as the blue prints indicate. On the other hand, if we have the best possible blue prints but a damaged and weak placenta, then the baby will build a deficient body. One needs to keep in mind that during the 9 months of intrauterine life, the baby creates the foundation for the body of the future adult. The better the foundation during the intrauterine life, the better will be the building in the future. It has been established very well in recent years that newborns that were deprived in utero and did not develop according to their blue prints, are more likely to develop the chronic diseases of adulthood such as, diabetes, hypertension, heart diseases, stroke, renal failure etc.. In other words, future adult health is directly related to the quality of intrauterine life. It happens so that the same adulthood diseases are caused by genetic thrombophilic mutations. When a pregnancy goes wrong and either the baby dies or suffers from some of the many pregnancy related complications such as, preterm birth, intrauterine growth restriction, premature rupture of membranes (broken water) with concomitant infection, pre-eclampsia and even fetal death, the obstetrician is quick to blame the placenta. What is unacceptable is the fact that in subsequent pregnancies such obstetricians do nothing to monitor the placenta and if there is a problem, to treat it accordingly in order to avoid a repeat adverse outcome.

The vast majority of placental conditions are the result of ***a coagulation system that is out of balance***. This may involve the fetal coagulation system only, the maternal only and commonly both. For this imbalance to happen one does not need to suffer from a major thrombophilic defect such as Factor V Leiden or Factor II. This is where most of the obstetricians are at fault. Unless a patient suffers from one of the major thrombophilic factors, obstetricians ignore the rest of the minor thrombophilic factors as insignificant. Regardless of how weak such factors might be, when present in various combinations,

they can destroy the placenta and cause fetal loss. At Kofinas Perinatal, we pay attention to all factors but most importantly pay attention to the placenta and the placental circulation. In addition to maternal thrombophilia, the father of the baby may contribute additional factors to the baby and this can make things a lot worse for the placenta and the baby. By focusing on the placenta we can detect all patients at risk for pregnancy complications and fetal loss regardless of their blood test results. The placenta is a plastic organ and until 24-26 weeks gestation it can be treated and become as close to normal as possible. The earlier the treatment the better the outcome.The important lesson to be learned by other obstetricians is that the placenta can be treated successfully if one pays attention to its development in the early stages of the pregnancy. After 26 weeks gestation, placental growth is mostly complete and one can only maintain the amount of placenta present but cannot improve it. For this reason, it is imperative that patients at risk for placenta related complication be seen as soon as they know they are pregnant. In fact patients with multiple pregnancy losses should be treated starting at the time of conception before they even know that they are pregnant for best outcomes. Patients who suffer from thrombophilia and are treated properly with Lovenox and Aspirin have the highest rates of healthy pregnancies. If they are not treated or not treated properly, placenta thrombosis develops and the outcome is then poor. Once such damage takes place, it is impossible to reverse it. That's why it is very important to prevent this from happening. In our patients, complication such as premature rupture of membranes, preterm delivery, pre-eclampsia, fetal growth failure, fetal distress and fetal death are extremely rare and reduced by 90% or more in relation to the general population of pregnant women. In fact, stillbirth happens in about 1 in 50 pregnancies between 20 weeks and 42 weeks among all pregnancies. At Kofinas Perinatal in more than 10,000 pregnancies in the last 8 years we experienced three fetal losses after 20 weeks gestation from very rare cord accidents. This is an unprecedented achievement and we believe it is the result of our attentive follow up of such patients and our special treatment protocols. We can only hope that more obstetricians and perinatologists will see the light and start making an effort to prevent all the pain and suffering caused by the loss of the unborn.