What is preeclampsia?
Preeclampsia is a condition which occurs only when you’re pregnant and for a short period after your baby is born. It causes high blood pressure and it also causes protein to leak out of your kidneys and into your urine. It’s usually mild and has little effect on the health of either mother or baby. However, for a small number of women, preeclampsia can be severe and if it isn’t diagnosed and treated, it can lead to a condition called eclampsia which can cause seizures (fits or convulsions). This can be very serious for both you and your baby and can be life threatening.
Preeclampsia most often develops in the second half of pregnancy, after 20 weeks, and can continue for six weeks after your baby is born. If you develop preeclampsia your baby is more likely to be born by caesarian section.
Preeclampsia is also sometimes called toxemia.

What causes preeclampsia?
Doctors don’t know exactly what causes preeclampsia. It’s thought that it may be caused by problems with the placenta. This can cause your body to have an immune response against the placenta and baby. Other possible causes include:
• If you have an existing condition that affects your immune system
• Blood vessel problems
• Poor diet
• Family history – preeclampsia can run in families and you’re more likely to develop it if a close relative, such as your mother or sister, had it

In a healthy pregnancy, your body widens the blood vessels to the placenta, which supplies your baby with oxygen and nutrients. If you have preeclampsia, the blood vessels become narrow, which means your placenta and therefore your baby get less blood than they need. Problems with the placenta can affect your organs, such as your kidneys, liver and brain, and can affect how your baby develops and grows.

How common is preeclampsia?
Preeclampsia occurs in about 4 in every 100 healthy women who become pregnant.
You’re more likely to develop preeclampsia if it’s your first pregnancy, if you’re under 20 years of age or over 35. You’re also more likely to develop preeclampsia if you:
• Are very overweight (obese)
• Are carrying more than one child (twins or more)
• Have had preeclampsia before
• Have a mother or sister who had preeclampsia
• Have diabetes, high blood pressure, kidney disease, lupus, or rheumatoid arthritis

What are the symptoms of preeclampsia?
Preeclampsia can have no symptoms, so it’s diagnosed by regular checks on your blood pressure and urine. Doctors can sometimes only be sure that you had preeclampsia once you have given birth and any symptoms have gone.
However, with preeclampsia, you may still develop some and different kinds of symptoms. If your blood pressure was normal before you became pregnant, the signs of preeclampsia may include:
• Headaches
• Vision changes
• Upper abdominal pain
• Feeling sick or being sick
• Feeling dizzy
• Sudden weight gain
• Passing less urine than usual
• Swollen face and hands
• High blood pressure
• Protein in your urine
• Severe headaches, blurred vision, or severe pain in your abdomen, contact your doctor right away.

What is the link between preeclampsia and vitamin D?
Vitamin D is important for overall health and scientists are getting closer to knowing how exactly vitamin D keeps us healthy.
High blood pressure occurs in preeclampsia. Some research shows that getting enough vitamin D may lower blood pressure. A proposed reason for this link is that vitamin D may help to control the hormones that affect your blood pressure.
Recent research reports that vitamin D has a hand in how your immune system works, which also plays a role in the risk of developing preeclampsia. In some women with preeclampsia, their immune system responds against the placenta and baby, as if they’re foreign invaders. Scientists and doctors have found that vitamin D influences your immune system by affecting the balance between cells called T helpers, which are essential for a healthy pregnancy. Scientists and doctors think that vitamin D’s positive effect on your immune system may potentially help prevent preeclampsia.

What does the research say about vitamin D and preeclampsia?
Researchers have found that vitamin D deficiency during the second trimester increases your chances of developing preeclampsia. A number of studies have suggested that the season of the year is linked to preeclampsia. Vitamin D levels are generally highest during the summer months and lowest during winter months. These studies suggest a link between season and risk of preeclampsia, not a cause of preeclampsia.
• In 2007, researchers studied 40,000 women receiving hospital care in the United States. Among Caucasian women, more women developed preeclampsia during winter than during the summer. The number of women developing preeclampsia steadily grew through the fall. Among African American women, there was no link between when they gave birth to their baby and risk of preeclampsia.
• In another study, researchers in South Africa found that the chances of developing preeclampsia increased in mothers admitted to the hospital during their winter months.

More specific research has looked at whether having low levels of vitamin D in your body (vitamin D deficiency) during pregnancy affects your likelihood of developing preeclampsia. Research has also
looked at whether taking a vitamin D supplement during pregnancy may reduce your chances of developing preeclampsia.

• In one study, researchers found that women with vitamin D blood levels below 15 ng/ml were more likely to develop preeclampsia compared to women with vitamin D levels higher than 15 ng/ml.

• Researchers in the US found that vitamin D deficiency during the second trimester significantly increased the chances of developing severe preeclampsia.

• Research published in 2010 reported that women with early onset preeclampsia (preeclampsia develops before 20 weeks of pregnancy) had lower vitamin D levels compared with healthy women.

• A study involving over 23,000 pregnant women showed that taking a vitamin D supplement of 600-800 IU/day reduced the chances of developing preeclampsia compared with women taking no supplement.

These studies show there is a link between vitamin D and preeclampsia, but do not prove whether vitamin D deficiency causes preeclampsia or not. Also, there is some research that shows no link between vitamin D and preeclampsia.

To date, there are no studies that prove taking a vitamin D supplement or getting enough vitamin D during pregnancy can prevent you from getting preeclampsia. Given this, it is not known if getting enough vitamin D can prevent preeclampsia.

Key points from the research

• The cause of preeclampsia remains largely unknown.

• Research shows a clear link between vitamin D deficiency and an increased chance of developing preeclampsia.

• Research doesn’t know what weeks into pregnancy show the strongest link between vitamin D deficiency and preeclampsia. For example, some research suggests vitamin D deficiency during late mid-trimester (24-26 weeks), but not early pregnancy (12-18 weeks) is linked to an increased chance of developing preeclampsia.

• Studies show there is a link between the season of the year and your chances of developing preeclampsia. Preeclampsia is least likely to develop in the summer months and most likely during winter months.

• There have been no studies where doctors gave pregnant women a vitamin D pill to take or a placebo pill to take, and compared the two’s chances of the women getting preeclampsia. Therefore, it’s not known if getting enough vitamin D during pregnancy can prevent preeclampsia.

What does this mean for me?

It’s not known if there is just a link between vitamin D and preeclampsia, or if vitamin D deficiency causes preeclampsia.

Research does show that there is a link between your vitamin D levels, the amount you expose your skin to the sun, and your chances of developing preeclampsia. The lower your vitamin D level, the more likely you are to have preeclampsia. However, it’s not known if this is just a link, or if vitamin D deficiency causes preeclampsia. For example, there might be something else that causes both vitamin D deficiency and preeclampsia.

Vitamin D is important for your general health during pregnancy and for you and your developing baby. Whether or not vitamin D affects your chances of getting preeclampsia, it makes sense to ensure you have good levels of vitamin D in your body while you are pregnant. However, you may still develop preeclampsia even if you’re getting enough vitamin D.

Many women don’t get enough vitamin D when they are pregnant. The Food and Nutrition Board at the Institute of Medicine of the National Academies recommends that if you’re pregnant or breastfeeding you should have 600 IU of vitamin D a day.

Talk to your doctor about taking vitamin D during pregnancy. The Vitamin D Council recommends amounts much higher than the Institute of Medicine and recommends that if you’re pregnant or breastfeeding, you should take 6,000 IU vitamin D every day except on days you get good amounts of sun exposure. You can get vitamin D either by taking a supplement, or by exposing your skin to the sun. Don’t take vitamin D in place of other treatments provided by your doctor.

Interesting study

In one study that started back in 1966, researchers gave babies either a 2,000 IU supplement of vitamin D or nothing. They wanted to know whether these babies grew up, became older and pregnant several decades later in life, if this supplementation had any effect on their chances of getting preeclampsia during their first pregnancy. They found that those who received 2,000 IU/day during their first year of life had a better balanced immune system later in life reduced by half. Researchers in the US found that vitamin D deficiency during the winter months likely to develop in the summer months and most likely during winter months.

Scientists and doctors think this is because vitamin D helps the body have the correct balance of cells involved in your immune system. Those who got vitamin D in their first year of life had a better balanced immune system later in life. Thus, those who got vitamin D had a lower chance of getting preeclampsia.

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