Thrombocytopenia during pregnancy
Importance, diagnosis and management
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Summary
Thrombocytopenia is observed in 6 to 15% of pregnant women at the end of pregnancy, and is usually moderate. Gestational thrombocytopenia (defined as a mild thrombocytopenia, occurring during the 3rd trimester with spontaneous resolution postpartum and no neonatal thrombocytopenia) is the most common cause of thrombocytopenia during pregnancy but a low platelet can also be associated with several diseases, either pregnancy specific or not, such as preeclampsia, HELLP syndrome, or idiopathic thrombocytopenic purpura (ITP). The differential diagnosis between ITP and gestational thrombocytopenia is clinically important with regard to the fetus, due to the risk of neonatal thrombocytopenia. However, this differential diagnosis is very difficult during pregnancy.

Thrombocytopenia which need to be investigated are the following: thrombocytopenia known before pregnancy, thrombocytopenia occurring during the 1st and 2nd trimester, platelet count < 75 G/l in the 3rd trimester or thrombocytopenia in case of pregnancy with complications. Investigations have to be discussed in function of history and clinical examination, gestational age and severity of thrombocytopenia.

No treatment is required in case of gestational thrombocytopenia. There are few data to distinguish management of ITP between pregnant and non-pregnant women but management is different because of the potential adverse effects of the treatment for the woman and/or the fetus, the requirement for a good hemostasis at delivery and the risk of neonatal hemorrhage. One important problem is that it is not possible to predict the risk of neonatal thrombocytopenia in babies born from women with ITP.

Zusammenfassung


Im Fall einer Gestations-Thrombozytopenie ist keine Behandlung erforderlich. Es liegen wenige Daten vor, die es ermöglichen, die Behandlung der ITP zwischen schwangeren und nicht schwangeren Frauen zu unterscheiden, die Behandlung ist jedoch unterschiedlich wegen möglicher unerwünschter Wirkungen der Behandlung für die betroffene Frau und/oder den Fetus, wegen der Notwendigkeit einer guten Hämostase bei der Entbindung und des Risikos für eine neonatale Hämostase. Ein wichtiges Problem besteht darin, dass es nicht möglich ist, das Risiko einer neonatalen Thrombozytopenie bei Babies zu erhöhen, die von Frauen mit ITP geboren werden.

Importance
Frequency, aetiologies
Thrombocytopenia, defined as a platelet count <150 G/l, is the most common haemostatic abnormality in pregnancy. Indeed, a platelet count <150 G/l can be observed in 6 to 15% of pregnant women at the end of pregnancy. Thrombocytopenia is usually moderate (<100 G/l in only 1% of women) and often incidentally detected on routine blood count (1).

Gestational thrombocytopenia (or incidental thrombocytopenia of pregnancy) is the most common cause of thrombocytopenia during pregnancy, representing about 75% of all cases of thrombocytopenia. Gestational thrombocytopenia is characterized by

- asymptomatic, mild thrombocytopenia (>75 G/l)
- no past history of thrombocytopenia (except during a previous pregnancy)
- occurrence during the 3rd trimester
- no fetal / neonatal thrombocytopenia
- spontaneous resolution postpartum

Thrombocytopenia can also be associated with several diseases, either pregnancy specific or not, such as preeclampsia and HELLP syndrome, which accounts for about 20% of cases, or idiopathic thrombocytopenic purpura (ITP), which accounts for about 5% of cases (2). Some rare cases are related to other causes such as thrombotic thrombocytopenic purpura, haemolytic uraemic syndrome, disseminated intravascular coagulation and others.

The diagnosis of ITP is very difficult during pregnancy because its presentation may closely resemble gestational thrombocytopenia. The diagnosis of ITP should be suspected in case of

- thrombocytopenia discovered before the 3rd trimester or present before pregnancy
platelet count <75 G/l in late pregnancy

- persistence of thrombocytopenia postpartum (but thrombocytopenia due to ITP may also promptly normalize after delivery).

In case of ITP, there is frequently a worsening of the thrombocytopenia during pregnancy. Furthermore, there is a risk of neonatal thrombocytopenia (NNT) due to transplacental passage of maternal platelet antibodies. Indeed, 25-40% of newborns from mothers with ITP have a platelet count of less than 150 G/l at birth but severe neonatal thrombocytopenia is rare as well as intracranial hemorrhage (ICH, in 1-2%). However, it is often associated with other problems such as intrauterine growth retardation, prematurity or fetal distress.

**New threshold?**

It seems appropriate to define a lower safety threshold for the platelet count at the end of pregnancy to avoid unnecessary maternal investigations, without risk for the mother and her infant. Indeed, mild thrombocytopenia is frequent late in pregnancy and maternal/neonatal bleeding complications are very rare in this situation. In a study including 6770 pregnant women, percentile 2.5 of platelet count was not at 150 G/l but at 115 G/l at the end of pregnancy. Therefore, if the platelet count is >115 G/l late in pregnancy and the clinical history and examination without problems, it seems reasonable to refrain from detailed investigations and follow the clinical course of the pregnancy.

**Which tests are helpful?**

Many tests can be performed in case of thrombocytopenia but, according to the guidelines of the American Society of Hematology, the diagnosis of ITP during pregnancy does not require special laboratory testing. The assessment of individual cases of thrombocytopenia in pregnancy focuses on excluding important secondary causes and weighing the risks of bleeding in mother and infant against the hazards of diagnostic and therapeutic interventions.

**Who needs to be investigated?**

Some thrombocytopenia need to be investigated, for example:

- thrombocytopenia known before pregnancy
- thrombocytopenia occurring during the 1st or 2nd trimester
- platelet count <75 G/l in the 3rd trimester
- thrombocytopenia in case of pregnancy with complications.

The investigations have to be discussed in function of the:

- history and clinical examination,
- gestational age,
- severity of thrombocytopenia.

**Proposition of guidelines**

If the history and physical examination are not suggestive for any specific diagnosis, it seems reasonable to monitor the platelet count, without performing any other investigation, in case of mild thrombocytopenia (platelet >115 G/l) occurring in the 3rd trimester. In case of thrombocytopenia between 75 and 115 G/l in the 3rd trimester, investigations can be limited (peripheral blood smear, liver function tests and, in case of risk factor, HIV testing). In case of thrombocytopenia present in the 1st or 2nd trimester or in the presence of a platelet count <75 G/l in the 3rd trimester, more investigations have to be performed (e.g., serology, haemostasis work up, creatinine, antinuclear antibodies, antiphospholipid antibodies). In every case, maternal count has to be performed each month (or more frequently in function of the severity of the thrombocytopenia) and in the postpartum period. For the newborn, platelet count is recommended at birth and between day 3 and day 5 (nadir).

**Management**

No treatment is required in case of gestational thrombocytopenia. The differential diagnosis between ITP and gestational thrombocytopenia is clinically important with regard to the fetus, because of the risk of NNT. However, the differential diagnosis between ITP and gestational thrombocytopenia is generally of little significance with regard to the mother. Indeed, in most of these unclear cases, thrombocytopenia is mild and does not need a maternal treatment during pregnancy.

There are few data to distinguish management of ITP between pregnant and non-pregnant women. Management is different because of the following points:

- potential adverse effects of the treatment for the woman (gestational diabetes and psychiatric disorders related to glucocorticoids for example) and/or the fetus (teratogenicity of certain drugs),
- requirement for good haemostasis at delivery,
- risk of neonatal hemorrhage.

It is not possible to predict the risk of NNT in babies born from women with ITP; the maternal platelet count and treatment does not correlate with the fetal platelet count. The only way to obtain a platelet count before delivery is to perform a percutaneous umbilical blood sampling but this procedure has some risks in itself (fetal distress, bleeding, and death) and is not recommended anymore in this case.

Caesarean section is often recommended in women with ITP because it is supposed to be less traumatic to the newborn compared to vaginal delivery, but there is no direct evidence of such a benefit.
References


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