

Iron Deficiency Anemia in Pregnancy

What is iron deficiency anemia (IDA)? How is it diagnosed?

The most common cause of anemia in pregnancy is due to iron deficiency. Iron is an important building block of hemoglobin which we obtain through our diet. When the hemoglobin level is decreased it is called anemia. Hemoglobin is the protein responsible for carrying oxygen so that it can be used by your body's tissues and organs.

IDA is diagnosed through bloodwork with a ferritin level, which is a test that measures iron stores. The combination of a low hemoglobin and low ferritin in pregnancy is consistent with IDA. However, you can also be iron deficient without being anemic (i.e., low ferritin level with a normal hemoglobin level). If required, there are additional blood tests that can be done to rule out other causes of anemia depending on your risk factors.¹

What causes IDA in pregnancy?

There are increased iron requirements in pregnancy due to the developing placenta and fetus. Approximately one extra gram of iron must be acquired during pregnancy to keep up with these demands. Normal physiologic changes in pregnancy, such as increased blood volume, also contribute to the development of IDA.²

How is it diagnosed?

Hemoglobin levels are measured during routine bloodwork early in pregnancy. A ferritin level may also be checked at that time and may be repeated later in pregnancy or in response to certain symptoms. A ferritin level less than 30 is consistent with iron deficiency.

What are the symptoms of IDA?

There are no symptoms specific to iron deficiency, but you may experience fatigue, paleness, shortness of breath, and headache. Other symptoms are hair loss, restless legs syndrome, dry skin or hair, elevated heart rate, and odd cravings (for example ice chips).³

Why does it matter?

Anemia in pregnancy is associated with both maternal and fetal adverse outcomes. Untreated IDA in pregnancy may increase the need for a blood transfusion after delivery. It is also associated with higher levels of depression during pregnancy and the postpartum period.^{4,5} For babies, maternal anemia is associated with preterm birth and low birth weight.⁶

How is it treated?

IDA is treated with iron supplementation, as prenatal vitamins and diet alone do not contain enough iron to treat IDA in pregnancy. There are different types of oral iron supplements (e.g. ferrous sulfate, gluconate, or fumarate, Fermax) that can be prescribed, which have varying levels of supplemental iron in them.¹

Iron supplements should be taken with water, separate from meals (especially foods containing dairy) and other medications, including prenatal vitamins. Iron supplements may cause side effects such as nausea and constipation.⁷ It is recommended to continue iron supplementation postpartum for the duration of while you are breast feeding to replenish iron stores after delivery.¹

IDA can also be treated with intravenous (IV) iron infusions. This may be prescribed during pregnancy if oral iron is not well tolerated or if there is an inadequate response.⁸ IV iron is a good option for treating IDA later in pregnancy, as it replaces iron stores faster than oral iron.⁹ IV iron is administered in hospital as it is associated with a small risk of infusion or allergic reactions and should be avoided if there is an active infection.⁸ Repeat blood counts and ferritin levels are used to assess response to iron supplementation.

Resources:

1. James, A.H. (2021). Iron Deficiency Anemia in Pregnancy. *Obstet Gynecol*, 138(4), 663-74. <https://doi.org/10.1097/AOG.0000000000004559>
2. Fisher, A.L. and Nemeth, E. (2017). Iron homeostasis during pregnancy, *The American Journal of Clinical Nutrition*, 106(6), 1567S-74S. <https://doi.org/10.3945/ajcn.117.155812>
3. Lopez, A., Cacoub, P., Macdougall, I.C., and Peyrin-Biroulet, L. (2016). Iron deficiency anaemia. *The Lancet*, 387(10021), 907-16. [https://doi.org/10.1016/S0140-6736\(15\)60865-0](https://doi.org/10.1016/S0140-6736(15)60865-0)
4. Dama, M., Van Lieshout, R.J., Mattina, G., and Steiner, M. (2018). Iron Deficiency and Risk of Maternal Depression in Pregnancy: An Observational Study. *J Obstet Gynaecol Can*, 40(6), 698–703. <https://doi.org/10.1016/j.jogc.2017.09.027>
5. Wassef, A., St-André, M., & Nguyen, Q. D. (2019). Anaemia and depletion of iron stores as risk factors for postpartum depression: a literature review. *Journal of Psychosomatic Obstetrics & Gynecology*, 40(1), 19–28. <https://doi.org/10.1080/0167482X.2018.1427725>
6. Ren, A., Wang, J., Ye, R.W., Li, S., Liu, J.M., and Li, Z. (2007). Low first-trimester hemoglobin and low birth weight, preterm birth and small for gestational age newborns. *Int J Gynaecol Obstet*, 98(2), 124-8. <https://doi.org/10.1016/j.ijgo.2007.05.011>
7. Moore, R. A., Gaskell, H., Rose, P., & Allan, J. (2011). Meta-analysis of efficacy and safety of intravenous ferric carboxymaltose (Ferinject) from clinical trial reports and published trial data. *BMC blood disorders*, 11, 4. <https://doi.org/10.1186/1471-2326-11-4>
8. Avni, T., et al. (2015). The safety of intravenous iron preparations: systematic review and meta-analysis. *Mayo Clin Proc*, 90(1):12-23. <https://doi.org/10.1016/j.mayocp.2014.10.007>
9. Al, R. A., Unlubilgin, E. , Kandemir, O. , Yalvac, S. , Cakir, L. & Haberal, A. (2005). Intravenous Versus Oral Iron for Treatment of Anemia in Pregnancy. *Obstetrics & Gynecology*, 106 (6), 1335-1340. <https://doi.org/10.1097/01.AOG.0000185260.82466.b4>