



ASPIRIN

Aspirin (acetylsalicylic acid, ASA) is a common medication similar to ibuprofen (Advil, Motrin) that reduces inflammation, fever and pain. Aspirin is also an anti-coagulant (prevents blood clots from forming). It is useful for treating or preventing some conditions like heart attack and stroke because it blocks the “clumping” action of platelets, the main component of blood clots.



ASPIRIN FOR PREECLAMPSIA PREVENTION?



In 1979, a study showed that women taking aspirin during pregnancy were less likely to develop preeclampsia compared to women not taking aspirin (*Lancet*, 1979). As preeclampsia is characterised by inflammation and increased platelet activation, aspirin may prevent the development of preeclampsia by reducing inflammation and coagulation. However, exactly how this works is not yet known.

KEY FINDINGS

- Since 1979, over 55 clinical trials have evaluated aspirin for the prevention of preeclampsia, reporting conflicting results. Importantly, studies suggest that the time aspirin is started in pregnancy, the dose and even the time of day aspirin is taken are important in determining if it is helpful.
- Aspirin is reported to reduce the risk of preeclampsia by anywhere between 10% to 89%. The most significant reduction in risk is for early-onset preeclampsia, typically defined as preeclampsia developing before 37 weeks gestation in most clinical trials.
- All studies conducted to date suggest that aspirin use in pregnancy is safe for both mother and fetus in the short term. However, the long-term consequences of in utero aspirin exposure are not known.
- When looking at the optimal time in pregnancy to start aspirin, studies show that there is a greater reduction in risk when aspirin is taken at or before 16 weeks gestation. For example, a 2010 meta-analysis of 27 trials (11,348 women) found that aspirin started at or before 16 weeks of gestation reduced the risk of preeclampsia by 53%. This association was not seen when aspirin was started after 16 weeks gestation. (*Obstet Gynecol*, 2010)



- Studies also suggest that the optimal aspirin dose needed to see an effect is between 100-150mg per day. The most recent meta-analysis conducted (*AJOG*, 2018) showed a 38% reduction in the risk of preterm preeclampsia when aspirin was started at or before 16 weeks of gestation with a daily dose of ≥ 100 mg. The effect was not seen at lower doses. Likewise, the recent ASPRE trial showed a 62% reduction in the risk of developing preterm preeclampsia in high-risk women taking 150mg aspirin per day, starting before 14 weeks of pregnancy. (*NEJM*, 2017).

- All trials to date have only included women with at least one risk factor for developing preeclampsia. The effectiveness of aspirin for preventing preeclampsia in women without risk factors is not known.

CURRENT RECOMMENDATIONS

Most authoritative bodies like the Society of Obstetricians and Gynaecologists of Canada and the American College of Obstetricians and Gynecologists recommend that women with risk factors for preeclampsia begin low-dose aspirin therapy in early pregnancy. Timing, dosing and duration of aspirin therapy varies between these organizations.

SHOULD ALL PREGNANT WOMEN TAKE ASPIRIN?

This is a complex question without a straightforward answer.

While trials have shown that aspirin prevents preeclampsia in some women, these studies have been conducted with women who have one or more risk factors for the disease. Aspirin for the prevention of preeclampsia in low-risk women has not been assessed in an appropriately powered clinical trial. **Should a universal aspirin policy be implemented without this information? How will women feel taking a medication while pregnant when the efficacy for her risk group is not known?**



Aspirin is a low cost medication and is widely available, making it an ideal preventative therapy. The cost of preeclampsia and its adverse outcomes to families and healthcare systems is significant. **Therefore, doesn't it make sense to give all pregnant women aspirin from a cost-benefit perspective?**

Although aspirin use in pregnancy is known to be safe for both mother and fetus in the short term, the consequences of long term aspirin exposure (if any) for the infant are not known. **Should aspirin only be prescribe for women where the benefit is known to outweigh any potential long term consequences?**

Hopefully some of these questions will be answered in a large trial currently underway in the United Kingdom that is looking at the benefit of giving aspirin to every pregnant women versus giving it only to women who screen positive for preeclampsia risk factors (Mone F et al, *Contemporary Clinical Trials*, 2016;49:143-148)

