

Effect of regular oral intake of aspirin during pregnancy on pregnancy outcome of high-risk pregnancy-induced hypertension syndrome patients

Pregnancy induced hypertension which is also called gestational hypertension is a hypertensive disorder characterized by high blood pressure that develops after week 20 of gestation. It can lead to serious conditions called preeclampsia and eclampsia. ⁽¹⁾ Preeclampsia is a pregnancy complication characterized by high blood pressure with end organ damage, most often the liver and kidneys. Usually it begins after the week 20, and associated with protein in the urine. While eclampsia is a severe condition that refers to the occurrence of new onset, generalized, tonic-clonic seizures or coma in a woman with preeclampsia, both disorders resolve postpartum. ⁽²⁾

Pregnancy-induced hypertension syndrome might be related to an anomaly of the placenta ⁽³⁾. Placenta nurse cells undergo autophagy which leads to ischemia and anoxia, and further releases of multiple inflammatory factors that will damage the vascular endothelial cells, and thus starts endogenous and extrinsic clotting mechanism ⁽⁴⁾. Thromboxan A₂ (TXA₂) secreted by platelet increases, while prostacyclin (PGI₂) decreases, which finally leads to a change in hemodynamics and thus hypertension occurs. Aspirin which is a nonsteroidal anti-inflammatory medication can interrupt the transformation from arachidonic acid to TXA₂ by inhibiting the activity of cyclooxygenase, thus reducing platelet accumulation and thrombosis ⁽⁵⁾. On the basis of this, it is conjectured theoretically that aspirin can prevent pregnancy-induced hypertension syndrome to some extent.

A clinical research study published in 2016 was to determine the effect of regular oral intake of aspirin during pregnancy on pregnancy outcome of high-risk pregnancy-induced hypertension syndrome patients. In this study, small-sampled Chinese pregnant women were selected by single-centered. 115 cases of pregnancy-induced hypertension syndrome patients were consecutively selected in the Department of Obstetrics and Gynecology from October 2012 to October 2015. The selection standards were age from (18-50) years, have a single birth, with no abortion history, while they rule out patients with coagulation disorder, who needs oral intake of anticoagulants like warfarin or vein application of heparin,

having hypertension before pregnancy and fail to control up to standard with drug and also patients being allergic to aspirin.

According to the order of admission to hospital of the patients, they used random number method to divide them into aspirin group (58 cases) and placebo group (57 cases). The differences of gestational week, age, BMI, systolic pressure and diastolic pressure between the two groups do not have statistical significance ($p>0.05$). After dividing the groups, patients in aspirin group were given 100 mg/day aspirin, which was orally taken before sleep until labor. On the other hand patients in the placebo group were given 100 mg/day drug with basically the same characteristics, color and tastes (provided by the Biopharmaceutics Center of the Department), which was orally intake before sleep until labor. Regularly test routine blood and coagulation function (once per month), and stop the drug to observe if there was abnormal condition. In the aspirin group, 2 cases stopped treatment, 2 cases lost following-up, 4 cases having abnormal tested index. Hence, in the aspirin group, there were 50 cases at the end. In the placebo group, there were 4 cases which stopped treatment, 5 cases lost following-up and, at the end, 48 cases were in the group. ⁽⁶⁾.

As a result, this study points out that occurrences of pregnancy-induced hypertension syndrome, pre-eclampsia and eclampsia of aspirin group were all significantly lower than that of the placebo group ($p<0.05$), the gestational week significantly prolongs, the bleeding volumes before, in and after labor were all significantly decrease ($p<0.05$). The difference of the occurrence of perinatal fetus complications does not have statistical significance ($p>0.05$). ⁽⁶⁾.

In conclusion, 100 mg/d regular oral intake of aspirin during pregnancy is safe and effective to pregnancy-induced hypertension syndrome patients, and is worthy of application and generalization. Further studies needed to determine the exact dose of aspirin that must be used.

References:

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