# Re: Effects of antenatal corticosteroids on maternal cardiovascular system, an underestimated notion in pregnant women

Pei-Yin Tsai [1]

[1]National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan

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Dear Editor,

I am glad to take this opportunity to respond the concerns about our article[1], regarding the antenatal corticosteroids (ACSs) on maternal cardiovascular system.

The administration of ACSs to expectant mothers in anticipation of preterm birth is one of the most important advances in perinatal medicine; ACSs are now standard care for pregnancies at risk of premature delivery. The widespread uptake of ACSs therapy is due to compelling evidence demonstrating improved neonatal outcomes, stemming most notably from corticosteroid-driven maturation of fetal pulmonary function.[2] Our nationwide population-based study also provides evidence to support the hypothesis that ACSs to women at risk of late preterm delivery might reduce the risk of neonatal respiratory complications, the need of glucose within 7 days of birth, the incidence of infant mortality, and medical expenditure.[1]

In our study, we included five untreated women (controls) matched to each woman treated with antenatal corticosteroids. The treated and matched control groups were similar in terms of maternal and gestational age, birth weight, sex, and incidence of nulliparous and gestational diabetes. However, the incidence of preeclampsia or gestational hypertension in the treated group (7.7%) is more than the control groups (6.9%, P = 0.029). Iatrogenic preterm delivery may happen due to maternal cardiovascular diseases and administered antenatal corticosteroid for fetal lung maturation in theses pregnancies.[1]

Because of the limitation of National Health Insurance Research Database, we were not able to investigate blood pressure, heart rate, and laboratory data in the women received ACSs. Considering this limitation, we analyzed the confounding factors to adjust the risk and confirm our results. In the subgroup that had gestational hypertension, the adjusted risks of subgroup were consistent with comprehensive results. Women who received ACSs had significantly fewer days in hospital. No significant difference was found in maternal postpartum disease. Therefore, the impacts of ACSs may not lead to harmful and long-term effects.

Professor Hantoushzadeh mentioned literatures involved short-term steroid use elicited both favorable and unfavorable effects on different cardiovascular risk factors in healthy young male volunteers.[3] Pregnancy is a period of continuous change in the maternal cardiovascular system, partly mediated by the autonomic nervous system. Insufficient autonomic adaptation to increasing gestation is associated with pregnancy complications, such as hypertensive disorders of pregnancy and preterm birth (both major causes of perinatal morbidity and mortality). There were scarce studies have investigated the changes in maternal cardiovascular system in response to the administration of routinely used obstetric medications, such as tocolytic agents and magnesium sulphate. Even though the effect of ACSs on fetal heart rate variability has been widely

investigated, ACSs use has received less attention in maternal cardiovascular system. And there was no study elaborated maternal cardiovascular effect after ACSs use during late preterm period.[4] As Professor Hantoushzadeh stated, it is important to know the side effects of ACSs on the cardiovascular system.[5] In the era of personalized medicine, there is both significant scope and imperative need for further research-informed refinement to the use of ACSs.[2]

Disclosure of interests

The authors declare no conflicts of interest.

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