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P-588 A comparison of obstetrical and neonatal outcomes in patients with the hyperandrogenic states, polycystic ovarian syndrome(PCOS) and congenital adrenal hyperplasia(CAH): a retrospective population-database study.

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Study question: PCOS and CAH are associated with increases in pregnancy complications. Therefore, we evaluated differences in pregnancy and neonatal outcomes between women with PCOS and CAH.

Summary answer: When comparing these conditions PCOS was associated with pregnancy-induced hypertension and gestational diabetes, whereas CAH had more cesarean sections and small for gestational age infants.

What is known already: PCOS and CAH are causes of hyperandrogenism among women of reproductive age. Apart from causing hyperandrogenism, they also share characteristics such as menstrual irregularity, polycystic ovaries and insulin resistance with central adiposity. Several meta-analyses have associated PCOS with adverse obstetrical and neonatal outcomes with most studies finding an increased frequency of pregnancy-induced hypertension (PIH), preeclampsia, gestational diabetes (GDM), cesarean section (CS) and preterm delivery. CAH on the other hand, is associated with higher rates of CS and inconsistent evidence about increases in GDM, chorioamnionitis and congenital anomalies.

Study design, size, duration: A retrospective population-based study utilizing data from the Healthcare Cost and Utilization Project - Nationwide Inpatient Sample (HCUP-NIS), was performed. A dataset of all deliveries between 2004 and 2014 inclusively, was created. Within this group, all deliveries to women who had a diagnosis of PCOS or CAH and pregnancy were identified. Each subject had a delivery or maternal death to be included once per pregnancy.

Participants/materials, setting, methods: Descriptive analyses were performed to compare the demographic features among both groups, for which chi-squared tests were used. Multivariate logistic regression analysis was performed to calculate unadjusted and adjusted odds ratios (aORs) and corresponding 95% confidence intervals (CI) and correct for any difference in baseline demographics ($P < 0.05$) between the groups. According to the Tri-Council Policy statement (2018), institutional review board (IRB) approval was not required, given that data was anonymous and publicly available.

Main results and the role of chance: A total of 15,179 women with either PCOS or CAH were included. Approximately 98% of those women (14,881) were diagnosed with PCOS, while the rest 2% (298) had CAH. The adjusted analysis for race, obesity, previous CS, multiple gestation and IVF yielded the following results. For pregnancy outcomes PIH (aOR=1.76; 95% CI: 1.12-2.77; $p = 0.015$) and GDM (aOR=1.68; 95% CI: 1.12-2.52; $p = 0.012$) were more common among women with PCOS, whereas no statistically significant results were detected for rates of placenta previa, preeclampsia or eclampsia superimposed on pre-existing hypertension or eclampsia. After additional adjusting for PIH and GDM, the delivery outcomes showed CS to be significantly less common in the PCOS group (aOR=0.59; 95% CI 0.44-0.80; $p < 0.001$), with no significant differences concerning preterm premature rupture of membranes, preterm delivery, abruptio placenta, chorioamnionitis, operative vaginal delivery, hysterectomy, postpartum hemorrhage, wound complications, maternal death and need for transfusion. In neonatal outcomes, women with CAH had higher percentages of SGA neonates (aOR=0.32; 95%

CI 0.20-0.52; $p < 0.001$) and no difference in intrauterine fetal demise and congenital anomalies.

Limitations, reasons for caution: The limitations of our study are its retrospective nature and the fact that it relies on an administrative database. Furthermore, CAH type was not specified. Information on medication use and compliance was also lacking information about certain potential confounders such as parity, and duration of labor.

Wider implications of the findings: This is the first study to investigate the differences in obstetrical and neonatal outcomes between these two hyperandrogenic disorders and we noted that the majority of risks were similar, despite the difference in the pathophysiology of these conditions. Rates of certain complications differ and studies are needed to elucidate why.

Trial registration number: N/A