

An assessment of demographics and clinical outcomes among patients with gestational diabetes with and without the diagnosis of PCOS; a nation-wide study

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BACKGROUND

- Polycystic ovarian syndrome (PCOS) is characterized by ovulatory dysfunction and signs and symptoms of hyperandrogenism.
- Gestational Diabetes Mellitus (GDM) develops in pregnant patients in whom endogenous insulin production is inadequate.
- There is limited evidence of clinical outcomes in patients with GDM with and without PCOS.

OBJECTIVE

- We sought to investigate demographics and clinical outcomes in patients with GDM with and without PCOS.

METHODS

- We queried NIS between 2017-2020 for adult patients who were hospitalized with GDM with and without PCOS.
- The primary outcomes were length of stay (LOS) and total hospital charge.
- The secondary outcomes comprised of mortality, cardiac arrest, use of mechanical ventilation, Diabetic Ketoacidosis (DKA), and Hyperosmolar Hyperglycemic State (HHS).
- Multivariable logistic and Poisson regression analyses were used to estimate clinical outcomes.
- P-value < 0.05 was significant.

RESULTS

Table 1. Characteristics in patients with GDM.

CHARACTERISTICS	GDM w/o PCOS	GDM w/ PCOS	p-value
Number	1220025 (98.4%)	20579 (1.6%)	
Mean age, years [SD]	31.5 [0.02]	32.0 [0.07]	
Race/Ethnicity, %			P = 0.01
White	43.8	58.0	
Black	11.7	7.9	
Hispanic	23.5	14.6	
Asian	11.1	7.8	
Other	9.6	7.8	
Comorbidities, %			
Obesity	18.8	38.5	P < 0.01
DKA	0.021	0.024	P = 0.88
HHS	0.0016	0.0016	P = 0.79
Dyslipidemia	0.6	3.3	P < 0.01
Anemia	10	10.7	P = 0.10
HTN	0.1	0.2	P = 0.2
HF	0.1	0.2	P = 0.2
AF	0.03	0.1	P < 0.01
AKI	0.1	0.2	P = 0.01
CKD	0.1	0.2	P = 0.01
Nicotine use	3.9	3.5	P = 0.21
PE	0.2	0.4	P < 0.01

Table 1. Clinical outcomes.

Outcome	GDM w/ PCOS	GDM w/o PCOS	OR [95% CI] ¹	IRR [95% CI] ¹	p-value
Invasive Mechanical Ventilation	650 (0.05%)	20 (0.09%)	1.2 [0.3-4.1]	NA	P = 0.7
LOS, days (SD)	3.8 (0.08)	3.0 (0.01)	NA	1.2 [1.2-1.3]	P < 0.01
Total charge (SD)²	7964 (182)	6587 (46)	NA	1.19 [1.1-1.2]	P < 0.01

¹Adjusted for age, race, Elixhauser comorbidity index, HTN, COPD, CKD, stroke.

²Adjusted for inflation 2017-2020.

RESULTS

- There were 1,240,605 hospitalizations with GDM and 20,579 (1.6%) had PCOS.
- PCOS and non-PCOS cohorts were with mean age of 32 vs 31.5 years; Caucasians 58% vs 43%; obesity 38.5% vs 18.8%; Hyperlipidemia (HLD) 3.3% vs 0.6%; Hypertension (HTN) 0.2% vs 0.1%; Atrial Fibrillation (AF) 0.1% vs 0.03%; Heart Failure (HF) 0.2% vs 0.1%; Acute Kidney Injury (AKI) 0.2% vs 0.1%; Pulmonary Embolism (PE) 0.4% vs 0.2%, respectively. [Tables 1 and 2]
- Although PCOS cohort had significantly longer LOS and higher healthcare charges, mortality, cardiac arrest, HHS, and DKA were not significantly different between the two cohorts and were extremely infrequent (10⁻³ order).

DISCUSSION & CONCLUSIONS

- The PCOS group demonstrated significantly higher resource utilization but there was no significant difference in clinical outcomes.
- In terms of demographics, patients were older, Caucasians, and with higher prevalence of obesity, HLD, HTN, AF, HF, PE, and AKI.
- PCOS is associated with higher cardiometabolic risk factors, and it increases the risk of adverse outcomes in patients with GDM.
- Further research is necessary to describe long-term outcomes in this population.