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Antidiabetic medication uses among pregnant women : real-world prescription pattern in South Korea

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INTRODUCTION

- Elevated glucose levels are a common condition during pregnancy, often requiring antidiabetic medications (ADM) to manage blood sugar.
- As the use of medications during pregnancy may have significant impact on maternal and fetal health, insulin is recommended as the primary medication during pregnancy.
- This study aimed to examine trends and patterns of antidiabetic medication use in South Korea and assess their adherence to clinical guidelines

METHODS

Study Design: Retrospective cohort study

Data Source

- The Health Insurance Review and Assessment database representative of the Korean population from January 1, 2016, to December 31, 2022

Study Population

- Mothers who gave birth between 2018 and 2021 and had a history of antidiabetic medication use either before or during pregnancy (*Figure 1*).

Prescription pattern analysis

- The sequence and frequency of antidiabetic medication prescriptions were analyzed across defined pregnancy-related periods.
- Each period was divided into 90-day segments:
  - Pre-conceptional period
  - Conceptional period
  - Post-conceptional period
- Visualization tool
  - Bar plot
  - Sankey diagram

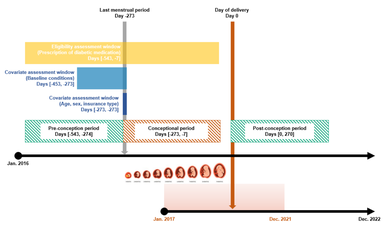

Figure 1. Study scheme

CONCLUSION

- This study showed the real-world prescription patterns of antidiabetic medications in pregnant women of South Korea.
- The findings show an increased use of antidiabetics during pregnancy.
- There was a notable shift toward safer options in later pregnancy stages, aligning with clinical guidelines to ensure optimal maternal and fetal outcomes.

RESULTS

Patient selection

- Of the 517,317 pregnancies, 16,734 (3.2%) were exposed to antidiabetic medication during pre-conception and pregnancy.

Baseline characteristics

- The study encompassed 16,734 patients, comprising 3.2% for the ADM cohort and 96.8% for the non-ADM cohort, with a mean age of 74.8 (8.7) years (*Table 1*). The average maternal age in patients with antidiabetic medication was 34.8 years (Standard deviation: 4.2).

Table 1. Baseline characteristics of study cohort

	w/Antidiabetic medication (n = 16,374)	w/o Antidiabetic medication (n = 500,637)	p-value
Age at delivery, mean (SD)	34.8 (4.17)	33.1 (4.49)	< .0001
Aged over 35, N (%)	9 065 (45.2)	189 525 (37.9)	< .0001
Prescription drug use, N (%)			
Lipid lowering agent	1 524 (9.1)	2 228 (0.5)	< .0001
Antihypertensives	1 106 (6.6)	5 136 (1.0)	< .0001
Comorbidity indices, mean (SD)			
Charlson comorbidity index	0.81 (1.2)	0.33 (0.72)	< .0001
Obstetric comorbidity index score	2.56 (2.14)	1.29 (1.57)	< .0001
Healthcare resource utilization, mean (SD)			
Number of outpatient visits	11.7 (9.62)	6.55 (7.02)	< .0001
Number of hospitalization	0.16 (0.53)	0.10 (0.40)	< .0001
Number of ED visits	0.03 (0.22)	0.02 (0.17)	< .0001

Abbreviations: w/, with; w/o, without; SD, standard deviation; ED, emergency department.

Prescription trend

- Antidiabetic medication prescriptions increased 1.5-fold from 2018 to 2021 (*Figure 2*).
- In the second and third trimesters, insulin use dominated (95.7% and 97.7%, respectively). Other oral antidiabetic medication use declined in later trimesters during pregnancy.

Prescription pattern

- Among patients with a history of antidiabetic medication use (*Figure 3*), those who used non-insulin agents either discontinued the medication or switched to insulin or insulin combination therapy during the first trimester.
- In the second trimester, insulin was the predominant treatment.
- After delivery, the patterns of antidiabetic medication use became more diverse.

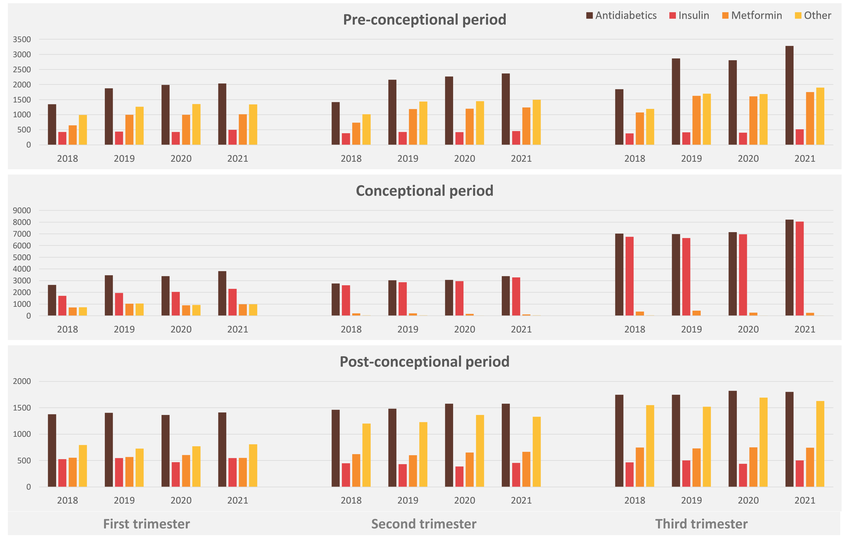

Figure 2. Trends of Antidiabetic Prescriptions Across the Pre-conceptional, Conceptional, and Post-conceptional Period

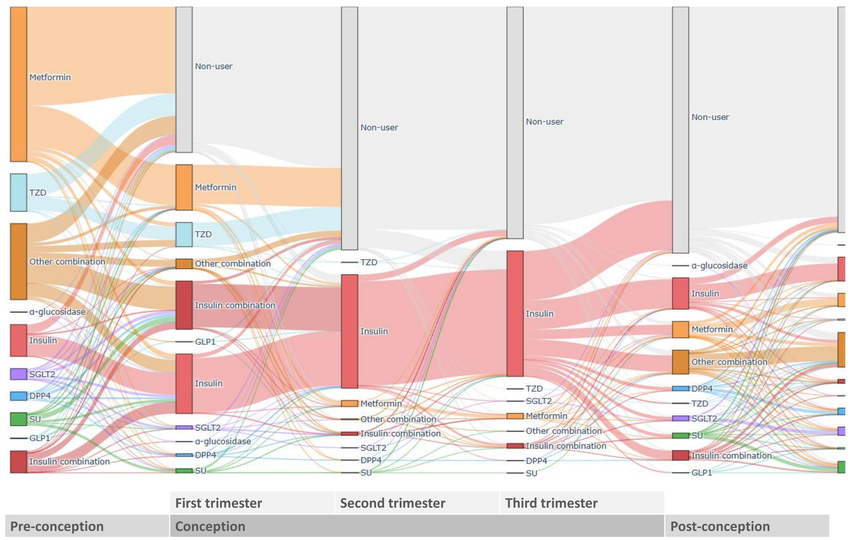

Figure 3. Antidiabetic Prescription Transitions During Pregnancy: A Sankey Diagram

Abbreviations: SU, sulfonylurea; TZD, thiazolidinedione; DPP4, dipeptidyl peptidase-4 inhibitor; SGLT2, sodium-glucose co-transporter 2 inhibitor; GLP1, glucagon-like peptide-1 receptor agonist.
*The thickness of each flow represents the proportion of patients transitioning between treatment categories over time.

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