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Evaluation of exposures of glucagon-like peptide-1 receptor agonists during pregnancy: Case series from a university's teratology information service

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Introduction:

- ✓ Recent studies have shown GLP-1RAs used in early pregnancy to be safe for major congenital abnormalities; however, during pregnancy, treatment with GLP-1RAs and weight loss are still not recommended (Figure 1).
- ✓ This study aims to present the pregnancy outcomes of using *GLP-1RAs* during pregnancy in our service.

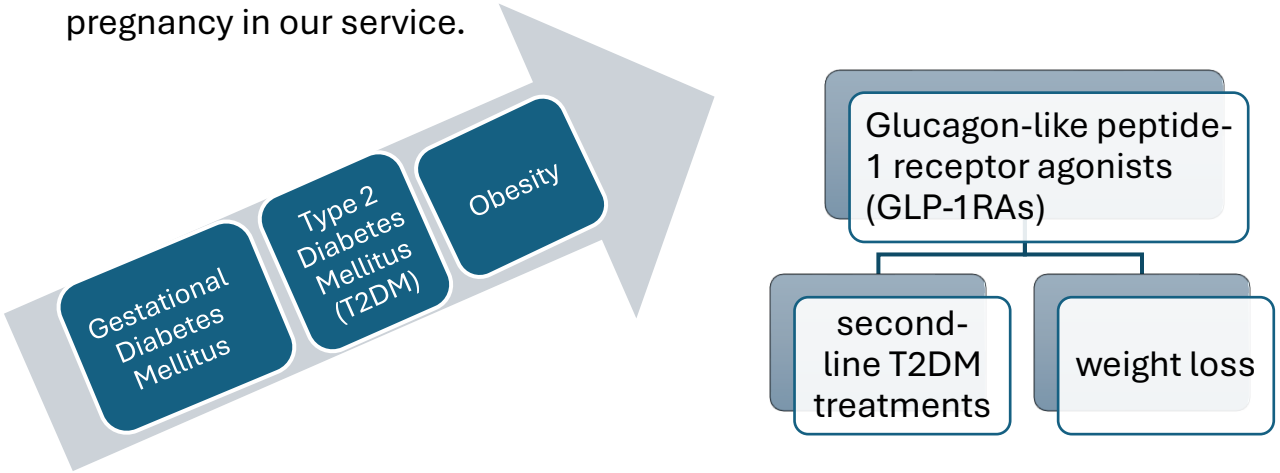

Figure 1. Type 2 diabetes mellitus (T2DM), gestational diabetes mellitus and obesity are becoming increasingly common among women of reproductive age. Glucagon-like peptide-1 receptor agonists (GLP-1RAs) were initially used as second-line T2DM treatments and later for weight loss, especially liraglutide and semaglutide.

Methods:

- ✓ Data were collected from pregnant women referred to the *Marmara University Teratogen Information Service* with exposure to *GLP-1RAs* between *2012* and *2024*.

- ✓ The patients were called and interviewed about their drug exposures, chronic diseases, glycemic control status, body mass indexes, concomitant exposures, pregnancy complications, birth characteristics, neonatal condition, infant health.

Table of Results: All women in our database with prenatal exposure to GLP-1RAs (n = 6) had been treated with liraglutide unintentionally for weight loss.

n	Age	BMI	Chronic diseases	Gravida, parite, abortus	Gestational week (w) at admission	Exposures	Complications	Pregnancy outcomes
1	39	41,5	Hypertension	G2P1A0	8 w.+5 d.	**Liraglutide 6 mg/ml** (for 2 weeks until 8th w.), perindopril, indapamide (2 months until 8th w.), insulin	Gestational diabetes & insulin (at 24th week)	C/S, 38th week, boy, 25th percentile, temporary neonatal hypoglycemia, no congenital anomalies.
2	30	30,4	Hypothyroidism, dyslipidemia, fibromyalgia, allergic asthma	G1P0A0	5 w.+5 d.	**Liraglutide 6 mg/ml**, doxylamine succinate 10 mg, pyridoxine hydrochloride 10 mg (until 5th w.), levothyroxine sodium		The birth has not yet occurred.
3	31	30,4	Hypothyroidism	G1P0A0	6 w.	**Liraglutide 6 mg/ml** (15 injections total until 6th w.), levothyroxine sodium 25 mg	Headaches and gestational hypertension in the 3rd trimester, no medication needed.	C/S, 38th week, girl, 50th percentile, no congenital anomalies.
4	36	28,1	Asthma	G2P0A0	7 w.	**Liraglutide 6 mg/ml**, bromelain, smoking (until 4th w., about 19 days)	Hyperglycemic attacks in the 1st trimester, hospitalization for 2 days and weight loss (3 kg) Gestational diabetes & insulin (at 26th week)	C/S, 38th week, girl, 90th percentile, no congenital anomalies.
5	40	34,2	Hypothyroidism	G1P0A0	6 w	**Liraglutide 6 mg/ml** (until 4th w.), levothyroxine sodium		Elective termination (as a result of **liraglutide** use)
6	29	-	-	G1P0A0	6 w	**Liraglutide 6 mg/ml** (1st-5th w. total 9 ml), dexamethasone 8 mg, pheniramine 45.5 mg, desloratadine 5 mg 1x1 (5th-6th w.)		Mild laryngomalacia required treatment in the neonatal intensive care unit for two days

Conclusions:

- ✓ The utilization of second-line non-insulin antidiabetic medications is significantly rising for the treatment of type 2 diabetes and other conditions, leading to a growing number of pregnancies affected by these medications.
- ✓ In experimental animals, prenatal GLP-1RA exposure could have adverse outcomes in the offspring.
- ✓ Considering the limited sample sizes, human studies regarding unintended GLP-1RA exposure during early pregnancy have not demonstrated any teratogenic effects.
- ✓ This condition has generated uncertainty in reports concerning the utilization of these medications during pregnancy, perhaps lead to pregnancy termination.
- ✓ The positive and negative consequences of weight loss during pregnancy in individuals with obesity or T2DM remain debated.
- ✓ Further studies needs to be conducted to verify the reliability of GLP-1RAs and the impact of weight loss on pregnancy outcomes..

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