Analysis of the main risk factors for gestational diabetes (GDM) diagnosed with International Association of Diabetes and Pregnancy Study Groups (IADPSG) criteria in multiple pregnancies.

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Introduction

Women with multiple pregnancies are at increased risk of maternal and neonatal complications. It's unclear whether GDM is more common in twin or singleton pregnancies, since available data are conflicting [1,2]. This study was designed to investigate the proportion of multiple pregnancies referred to our center with a diagnosis of GDM using the IADPSG criteria[3], and also to identify the impact of age, body mass index (BMI) and mode of conception on the incidence of GDM in this population.

Materials and Methods

This is a single center, retrospective cohort study on 656 multiple pregnancies screened for GDM with 75-grams, 2hour oral glucose tolerance test at 24-28 weeks of gestation from 2010 to 2016. GDM was diagnosed by the IADPSG criteria when one glucose value was greater than or equal to the established cut off: fasting plasma glucose ≥92 mg/dL,1-h ≥180mg/dL,and 2h ≥153 mg/dL.Exclusion criteria included maternal pre-gestational diabetes and hypertension, major fetal anomalies and TTTS.

Results

Table 1	Number	Percentage
Age		
< 35y	236	36.0 %
≥ 35y and < 40y	235	35.8 %
≥ 40y	185	28.2 %
BMI		
<18.5	26	4.0 %
≥ 18.5 and < 25	380	57.9 %
≥ 25 and < 30	131	20.0 %
≥ 30	119	18.1 %

Data from 656 multiple pregnancies were collected. Baseline characteristics are presented in table 1. The incidence of GDM in multiple pregnancies referred to our hospital was 15.1% (n.99). Differences in age and BMI based on conception mode are presented in table 2.

Table 2	Spontaneous	ART-Homologous	p	ART-Heterologous	p
Avarage BMI	25.4 ± 6.2	23.5 ± 3.8	n.s.	24.2 ± 4.1	n.s.
Average Age	34.2 ± 4.9	35.2 ± 5.2	n.s.	42.3 ± 3.5	<0.001

Figure 1

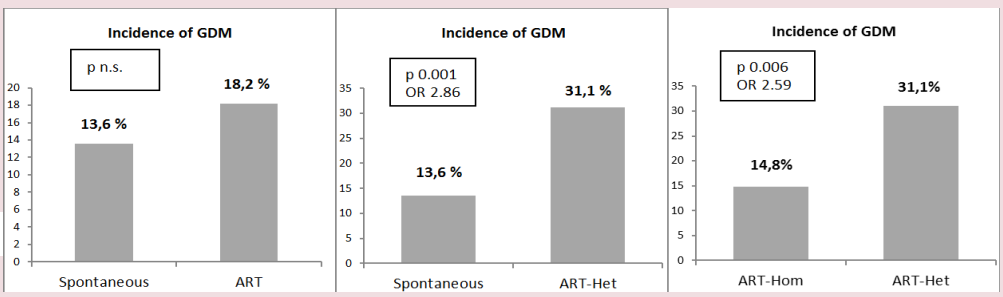
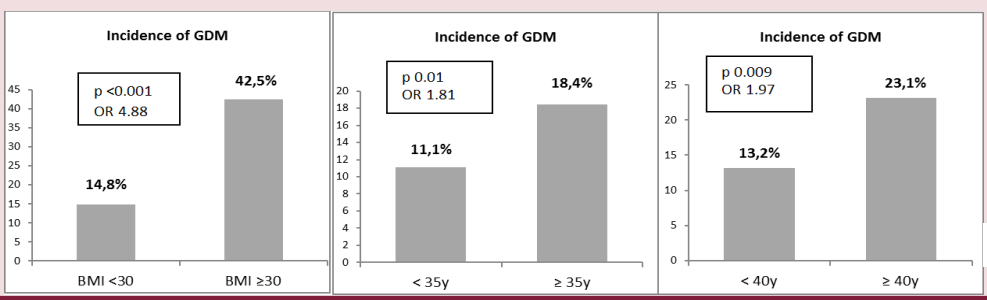


Figure 2



Conclusions

The IADPSG has recently recommended new universal screening and diagnosis criteria based on the HAPO study[4]. Overall, using the proposed criteria, 17.8% of the HAPO population would be identified as having GDM. The prevalence of GDM in twin pregnancies using the IADPSG screening protocol is still unclear, and in our study population is 15.1%. Our study confirms that ART is a relevant risk factor for GDM but we highlight that this observation refers to donor oocyte ART subgroup patients. However, it should be considered that these patients are significantly older, and the effect of age should not be ignored despite no differences in terms of BMI being identified. Indeed, our results confirm the role of advanced maternal age as a relevant risk factor for GDM in multiple pregnancies but the most relevant risk factor for GDM in our population of multiple pregnancies is BMI ≥30.

In conclusion, our data support the relationship of age, BMI and mode of conception with GDM in multiple pregnancies: if a wide range of clinical information can be collected, more accurate assessment can be offered to couples in order to define pregnancy outcome.

References

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