STUDY ON THE DIFFERENCES BETWEEN OVERT DIABETES FIRST DIAGNOSED IN PREGNANCY AND GESTATIONAL DIABETES

INTRODUCTION

- GDM is rapid rising worldwide, especially in the Asia region.
- The prevalence of GDM varies from 8,9 – 53,4%:
  - New criteria by the IADPSG on diagnosis of GDM
  - Increment in the prevalence of obesity and T2DM in young women.
- GDM is associated with maternal complications such as hypertension and cesarean section, and neonatal complications, such as macrosomia, hypoglycemia, and respiratory distress syndrome.

INTRODUCTION

- The HAPO study showed a positive correlation between maternal hyperglycemia level and adverse maternal, fetal, and/or neonatal outcomes.
- Higher levels of maternal glucose with no defined levels, after which the risk increases.
- Rapid management and follow-up may also be required during pregnancy.

INTRODUCTION

- The IADPSG proposed the following definition for overt diabetes during pregnancy (ODM): pregnant women who meet the criteria for diabetes in the nonpregnant state but were not previously diagnosed with diabetes.
- Women with ODMP are newly defined as having:

- Fasting glucose ≥ 7,0 mmol/l
- or 2h post OGTT glucose ≥ 11,1 mmol/l
- or HbA1C ≥ 6,5%.

INTRODUCTION

- Thus, 2 types of glucose intolerance are identified in pregnancy: GDM and ODM.
- Our hypothesis is that ODM would have a more severe glycemic disturbance and increased risk of both maternal and neonatal complications.
- However, little has been reported regarding differences in pregnancy outcomes between these groups.
- Therefore, we conducted this study to assess and compare pregnancy outcomes between ODM and GDM.

Patients and methods

- Patients and methods: The study conducted from 11/2014 to 7/2015 in Endocrinology - Bach Mai Hospital. Data were collected on 283 women in the study including 104 with overt diabetes and 179 women with gestational diabetes. These women were examined, managed blood glucose by modifying lifestyles and dietor insulin treatment until the end of pregnancy
- Study design: Description prospective study.

Patients and methods

Choose 2 group for study:

GDM: (ADA 2011) 75 g OGTT at 24–28 weeks gestation

- Fasting glucose: ≥ 5,1 mmol/l
- 1h post OGTT glucose: ≥ 10,0 mmol/l
- 2h post OGTT glucose: ≥ 8,5 mmol/l

ODM: (ADA 2011)

- Fasting glucose ≥ 7,0 mmol/l
- 2h post OGTT glucose ≥ 11,1 mmol/l

Patients and methods

We excluded from the study:

Women with multiple fetal gestations, pre-gestational diabetes, history of previous treatment for gestational diabetes, active chronic systemic disease other than chronic hypertension, women with the second of 2 pregnancies within the same year …….

Patients and methods

Question:

- Age (yrs).
- BMI before pregnancy (kg/m2).
- Gestational weight gain (kg).
- Gestational age at diagnosis (wk).
- Risk factors for GDM.

Patients and methods

Exam:

- Blood pressure:
- BMI

Sub – clinical:

- 75 g OGTT at 24–28 weeks gestation.
- HbA1C.
- Urine: Glucose, Ceton.

Patients and methods

TREATMENT:

- ❑ Insulin therapy
- ❑ Max insulin dose.
- ❑ Treatment goals (ADA 2011)
  - Fasting glucose : ≤ 5,3 mmol/l.
  - Glucose after1h ≤ 7,8 mmol/l or after 2h ≤ 6,7 mmol/l

Patients and methods

Adverse pregnancy outcomes:

- **Polyhydramnios**
- **Preterm birth**
- **Hypertension**
- **Pre-eclampsia and Eclampsia**
- **Stillbirth**

Patients and methods

Adverse pregnancy outcomes

- Large-for-gestational age
- Small-for-gestational age
- Hypoglycemia
- Apgar
- Congenital malformations.

Results and discussion

Baseline characteristics

	ODM (n = 104)	**GDM (n = 179)**	**p**
Age (y)	31.5 ± 4.3	30.3 ± 5.8	p > 0.05
BMI (kg/m2)	**22.6 ± 3.2**	**20.8 ± 5.8**	**p < 0,05**

Tuổi: Wong, Sugiyama không khác biệt. Sumin có khác biệt.
BMI: Khác biệt Wong, Sugiyama, Sumin.

Results and discussion

Baseline characteristics

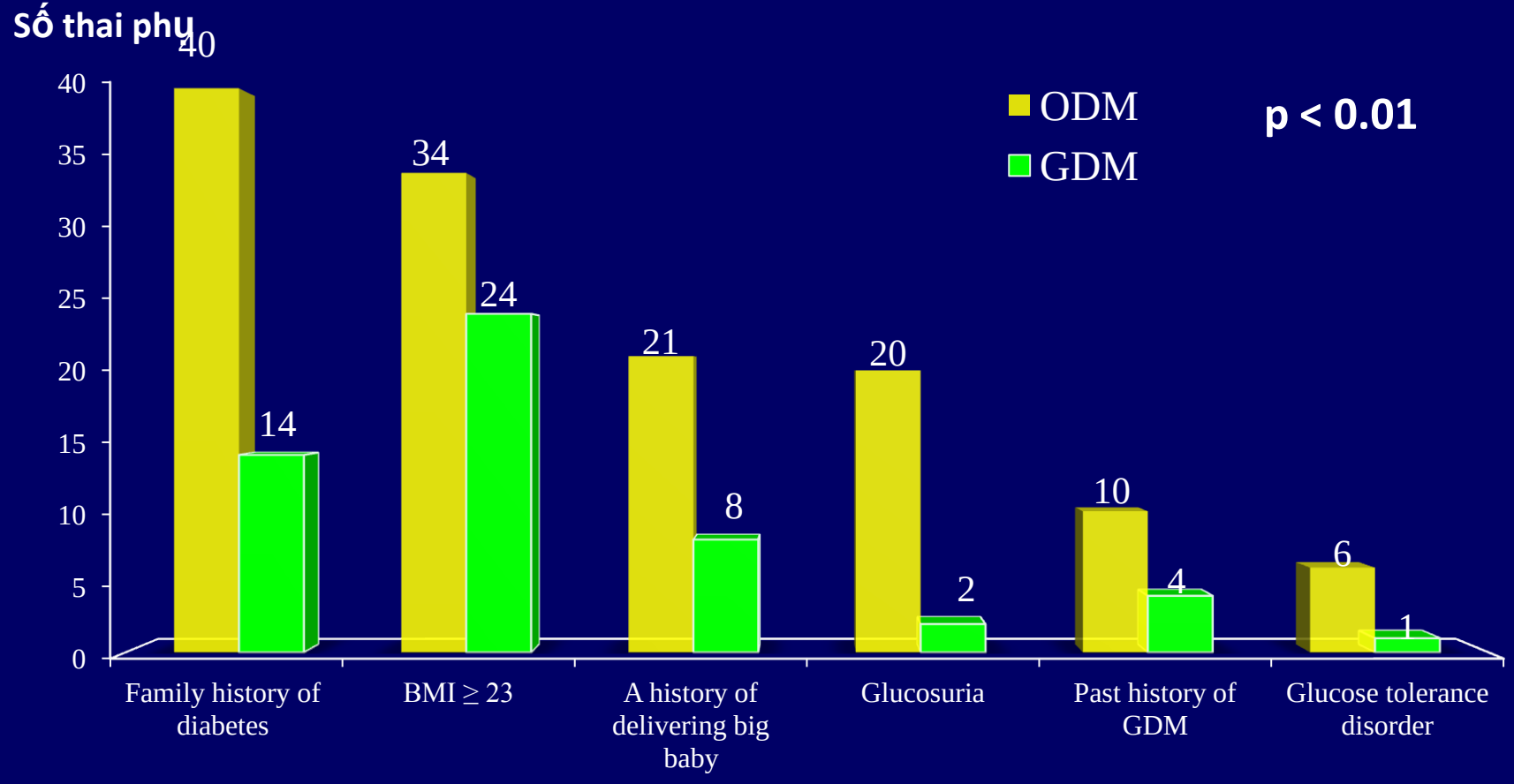
	ODM **n = 104**	**GDM** **n = 179**	**p**
Gestational age at diagnosis (wk)	27.4 ± 6.4	26.1 ± 1.9	p > 0.05
Gestational weight gain (kg)	10.1 ± 4.6	11.2 ± 3.5	p > 0.05

Results and discussion

High risk factors

	ODM **n = 104**	**GDM** **n = 179**	**p**
Yes – n (%)	76 (73,1 %)	50 (27,9 %)	**p < 0.01**
No – n (%)	28 (26,9 %)	129 (72,1 %)	

Results and discussion



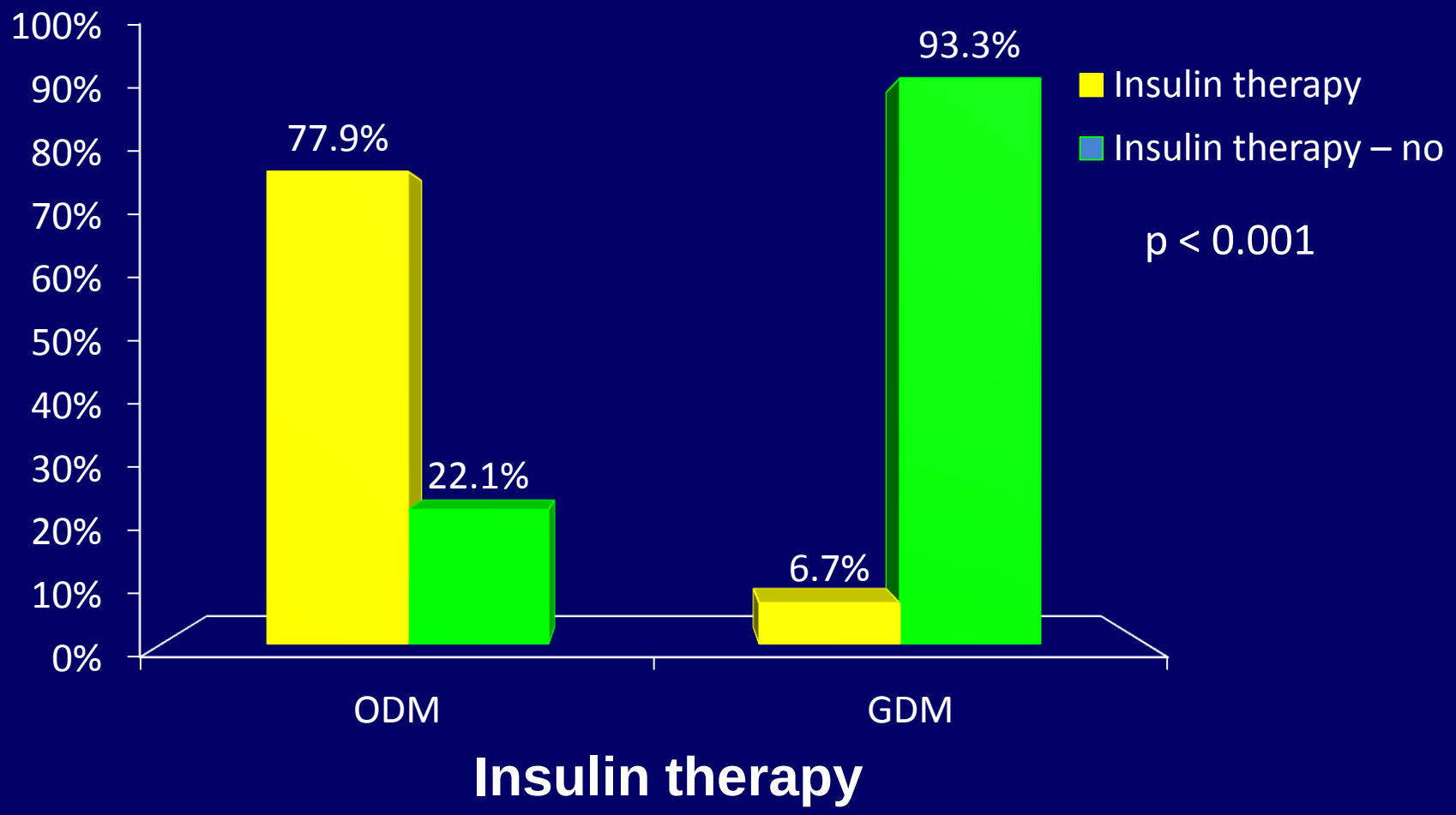
High risk factors

Results and discussion

Baseline characteristics

Đặc điểm	**ODM** **n = 104**	**GDM** **n = 179**	**p**
Antenatal oral glucose tolerance test (fasting result) (mmol/l)	7.4 ± 2.6	5.1 ± 0.4	p< 0.001
Antenatal oral glucose tolerance test (2-h result) (mmol/l)	13.4 ± 2.1	9.2 ± 2.8	p< 0.001
HbA1C (%)	6,6 ± 1,2	5.2 ± 0.3	p< 0.01
Ceton urinary	18(17.3%)	0	

Results and discussion



Results and discussion

Treatment

	ODM **n = 104**	**GDM** **n = 179**	**p**	**RR**
Reach treatment goals **n = 231**	**76** **73.1 %**	**155** **86.6 %**	**p < 0.01**	**2.4** **(1.3 – 4.4)**
No reach treatment goals n = 52	28 26.9 %	24 13.4 %		

Results and discussion

Baseline characteristics

	ODM **n = 86**	**GDM** **n = 179**	**p**
Gestational age at delivery (wk)	38.2 ± 1.6	39.0 ± 1.3	p < 0.01
Birth weight (g)	3.3 ± 0.6	3.2 ± 0.5	p > 0.05
Cesarean section – n (%)	66 (76.7%)	114 (80.4%)	p > 0.05

Results and discussion

Adverse pregnancy outcomes

	ODM **n = 86**	**GDM** **n = 179**	**p**	**RR** **95% CI**
Yes - n	51	58	< 0.001	1.8
%	59.3%	32.4%		(1.4 – 2.4)

Results and discussion

Maternal complications

	ODM n = 86	GDM n = 179	p	RR 95% CI
Polyhydramnios	19 (22.1)	23(12.8)	> 0.05	1.7 (0.9 – 2.8)
Preterm birth	**22 (25.6)**	**18 (10.1)**	**< 0.01**	**2.5 (1.4 – 4.5)**
Hypertension – n (%)	**11 (12.8)**	**5 (2.8)**	**< 0.01**	**4.6 (1.6 – 12.7)**
Pre-eclampsia and Eclampsia	6 (7.0)	1 (0.6)	< 0.05	-
Stillbirth	1(1.2)	1(0.6)	-	-

Sugiyama THA, TSG cao hơn có ý nghĩa thống kê so với nhóm ĐTĐTK.

Results and discussion

Neonatal complications.

	ODM n = 86	**GDM n = 179**	**p**	**RR 95% CI**
LGA – n (%)*	10 (11.6)	10(5.6)	p > 0.05	2.1 (0.9 – 4.8)
SGA – n (%)**	9 (10.5)	10 (5.6)	p > 0.05	1.9 (0.8 - 4.4)
Hypoglycemia – n (%)	**5 (5.8)**	**2 (1.1)**	**p < 0.05**	**5.2 (1.0 - 25.2)**
Congenital malformations – n (%)	4 (4.7)	1 (0.6)	p > 0.05	-
Neonatal death	1(1.2)	0	-	-
RDS – n (%)***	1(1.2)	0	-	-

*large-for-gestational age; **small-for-gestational-age; ***Respiratory distress syndrome

Sugiyama không khác biệt tỉ lệ HĐHSS. Wong có sự khác biệt tỉ lệ HĐHSS.

Conclusions

- Most of the women in the groups overt diabetes have high risk factors (73,1%).
- GDM just control blood glucose with diet (93.3%). 77.9% of ODM group need insulin to control blood glucose.
- ODM have rate of complications for mother and fetus is higher than GDM (59.3% versus 32.45%, $p < 0.01$)
- ODM increases the incidence of premature birth, maternal hypertension and hypoglycemia in neonates

Recommendation

- Early screening of gestational diabetes, especially in high-risk pregnant women, should be used to detect early gestational diabetes and reduces morbidity for both mother and baby.


Thanks for your attention!