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# The Effects Of Bisoprolol During Pregnancy

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# Background

- ▶  $\beta$ - blockers constitute two-thirds of all medication for cardiovascular disease (CVD) used during pregnancy.
- ▶ The use of  $\beta$ - blockers during pregnancy does not seem to increase the risk of congenital malformations but they are associated to foetal growth restriction (FGR)
- ▶ FDA Pregnancy Category C drug
- ▶ Bisoprolol is a selective antagonist of  $\beta$ -1 receptor
- ▶ Few data about bisoprolol during pregnancy

# Objective

- ▶ Analyse maternal and neonatal outcomes in pregnant women with cardiovascular disease treated with bisoprolol

# Methods

2014-2017



120 pts

*Singleton pregnancies*

26  
bisoprolol group

*more than 2 weeks and with  
a dose higher than 1.25  
mg/day*

94  
control group

## Maternal outcomes

- gestational age
- delivery mode
- cardiovascular events

## Foetal & Neonatal outcomes

- FGR
- Birth weight
- APGAR score

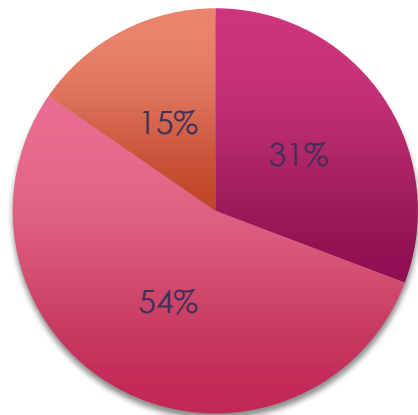
# Results – maternal outcomes

	Bisoprolol N= 26	Control group N= 94	P value
Age Median (range)	33 (18-43)	31.5 (20-41)	0.318
Nulliparous N (%)	13 (50.0%)	63 (67.0%)	0.173
BMI median (range)	22.3 (18.2-38.8)	22.6 (15.2-34.6)	0.824
Smoking and alcohol	/	/	

	Bisoprolol N= 26	Control group N= 94
Vaginal N (%)	13 (50%)	53 (56%)
Operative N (%)	1 (3.8%)	3 (3.2%)
Elective CS N (%)	10 (38.5%)	25 (26.6%)
Emergency CS N (%)	2 (7.7%)	13 (13.8%)

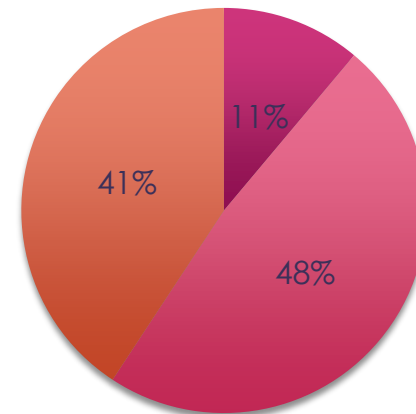
**Bisoprolol group**

Type of CVD



■ CHD ■ Acquired ■ Arrhythmia

WHO



■ I ■ II ■ III

**No cardiological events**

# Results – Neonatal outcomes

	Bisoprolol group N= 26	Control group N= 94	P
Gestational age	37.9 ± 2.8	38.7 ± 3.8	0.056
Weight (g)	2665 (1020-3550)	3050 (1500-4150)	0.002
APGAR 1'	9 (6-9)	9 (4-9)	0.467
APGAR 5'	9 (7-9)	9 (6-9)	0.245
Weight centile	19.5 (0-94)	43 (0-97)	0.003
SGA N (%)	10 (38.5%)	14 (15.1%)	0.019
LGA N (%)	1 (4.0%)	5 (5.4%)	1.000

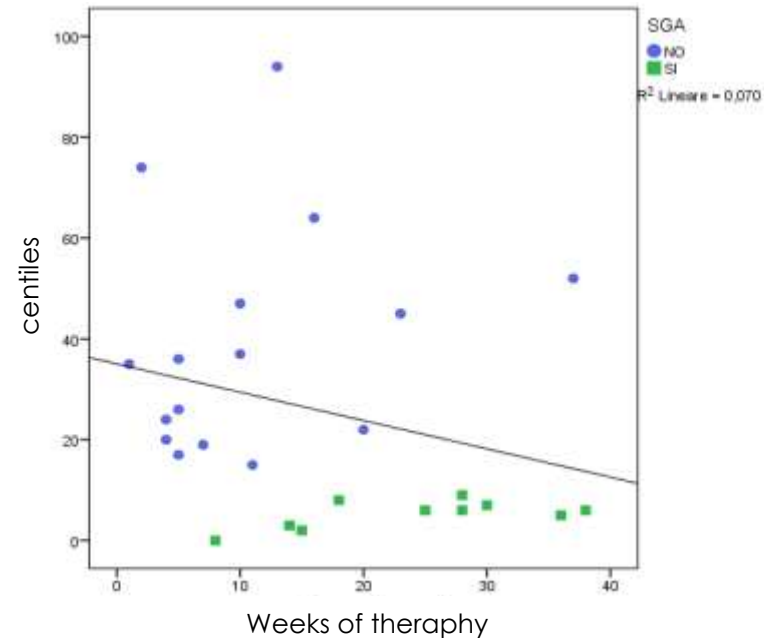
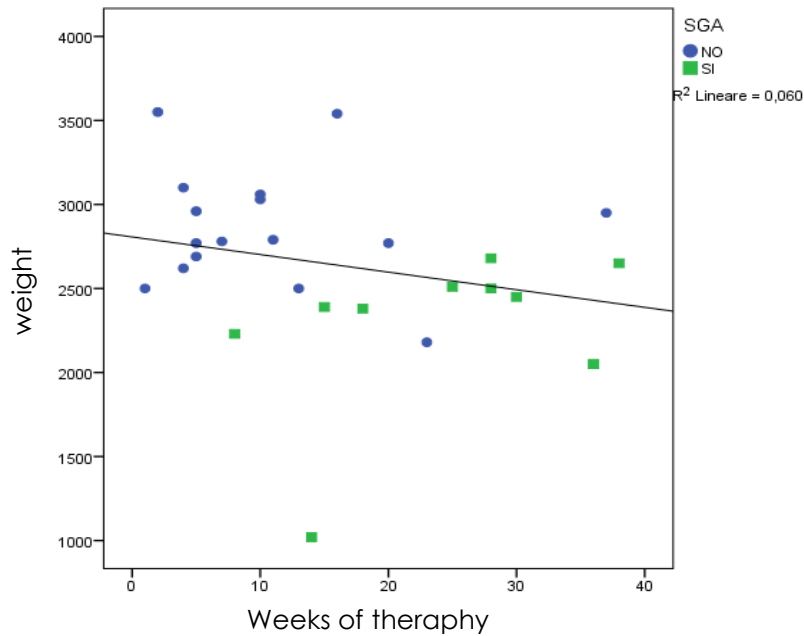
**Bisoprolol  
group**

**No cases of FGR  
No neonatal hypoglycemia  
No bradycardia  
No congenital heart disease**

SGA is defined as a birth-weight of less than the 10<sup>o</sup> centile according to the Italian Neonatal Study (INeS) charts  
FGR is defined as a baby that is unable to achieve its genetically determined potential size

# Results – neonatal outcomes

	SGA N=10	No SGA N=16	P
Weeks of therapy	26.5 (8-38)	8.5 (2-37)	0.002



**TREND!**

# Conclusions

- ▶ Effects of bisoprolol during pregnancy are similar to the ones of other betablockers
- ▶ No case of FGR was reported
- ▶ Small sample size
- ▶ Further studies are needed to confirm our data





*Chiara Macchi*