



Hypertension and Pregnancy: Pharmacologic Treatment and Pregnancy Outcomes

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Objectives

 To describe the pharmacological treatment and pregnancy outcomes of pregnant women with hypertension (HTN)

Methods

- Observational cohort study from the Information System for the Development of Research in Primary Care (SIDIAP)
- A previous algorithm was used to identified pregnancy episodes (N=327,865)
- ICD 10th HTN diagnosis codes for cohort selection:
 - I10-I15
 - O10-O16
- Antihypertensive drugs (according to the ATC-WHO classification):
 - Antiadrenergic agents (C02) (e.g. methyldopa)
 - Diuretics (C03) (e.g. hydrochlorothiazide)
 - β-blocking agents (C07) (e.g. labetalol)
 - Calcium-channel blockers (C08) (e.g. amlodipine)
 - Agents acting on the renin-angiotensin system (RAS agents) (CO9), including Angiotensin-converting enzyme (ACE) inhibitors (CO9A) and Angiotensin II receptor blockers (ARB) (CO9C) (e.g. enalapril, valsartan...)

Statistical analysis

- Descriptive statistics for diagnoses and treatments were calculated
- A regression model for prematurity (pregnancy duration of less than 37 weeks) was run

Results

Table 1: Pregnancy episodes characteristics stratified by antihypertensive drugs exposure

Total cohort (4,839 pregnancy episodes)	AntiHTN drugs exposure N=1934	Non exposure to AntiHTN drugs N=2905
Age (mean, SD)	36.00 (5.2)	34.17 (5.5)
BMI (mean, SD)	30,30 (6.3)	29,12 (6.3)
Smoke	357 (18.5)	550 (18.9)
Alcohol	180 (9.3)	184 (6.3)
Gestation number #1 #2 #3 or more	1689 (87.3) 208 (10.8) 37 (1.9)	2439 (84.0) 386 (13.3) 80 (2.8)
HTN chronic gestational	1415 (73.2) 519 (26.8)	1563 (53.8) 1342 (46.2)
CKD	28 (1.4)	15 (0.5)
Livebirths	1502 (77.7)	2402 (82.7)
Preterm	330 (17.1)	357 (12.3)
Exposure by AntiHTN group Antiadrenergic agents Diuretics β-blocking agents Calcium-channel blockers RAS agents	590 (30.5) 271 (14.0) 1160 (60.0) 333 (17.2) 815 (42.1)	

AntiHTN: anti hypertensives; SD: standard deviation; BMI: body mass index; HTN: hypertension; CKD: chronic kidney disease; RAS: renin angiotensin system; All statistically significant

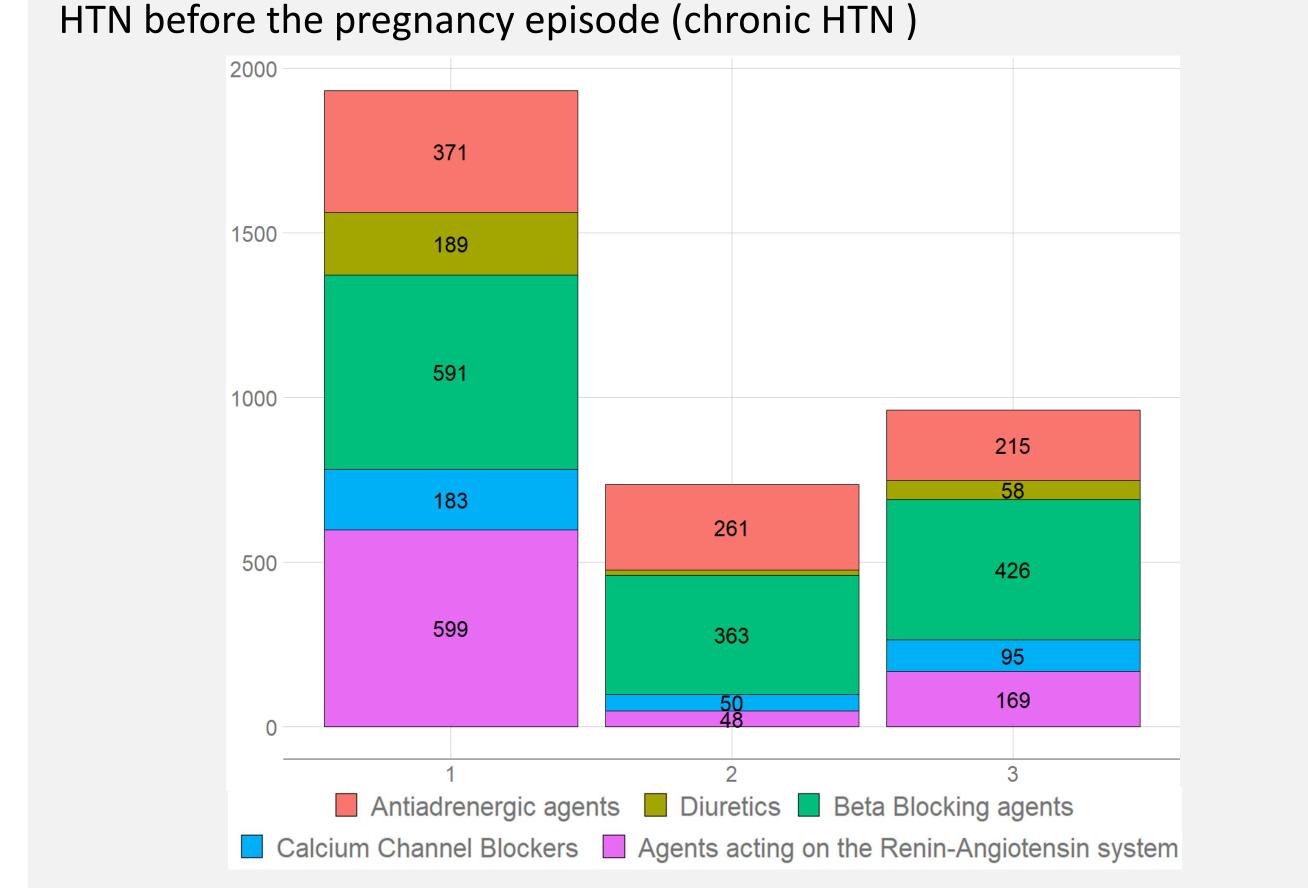
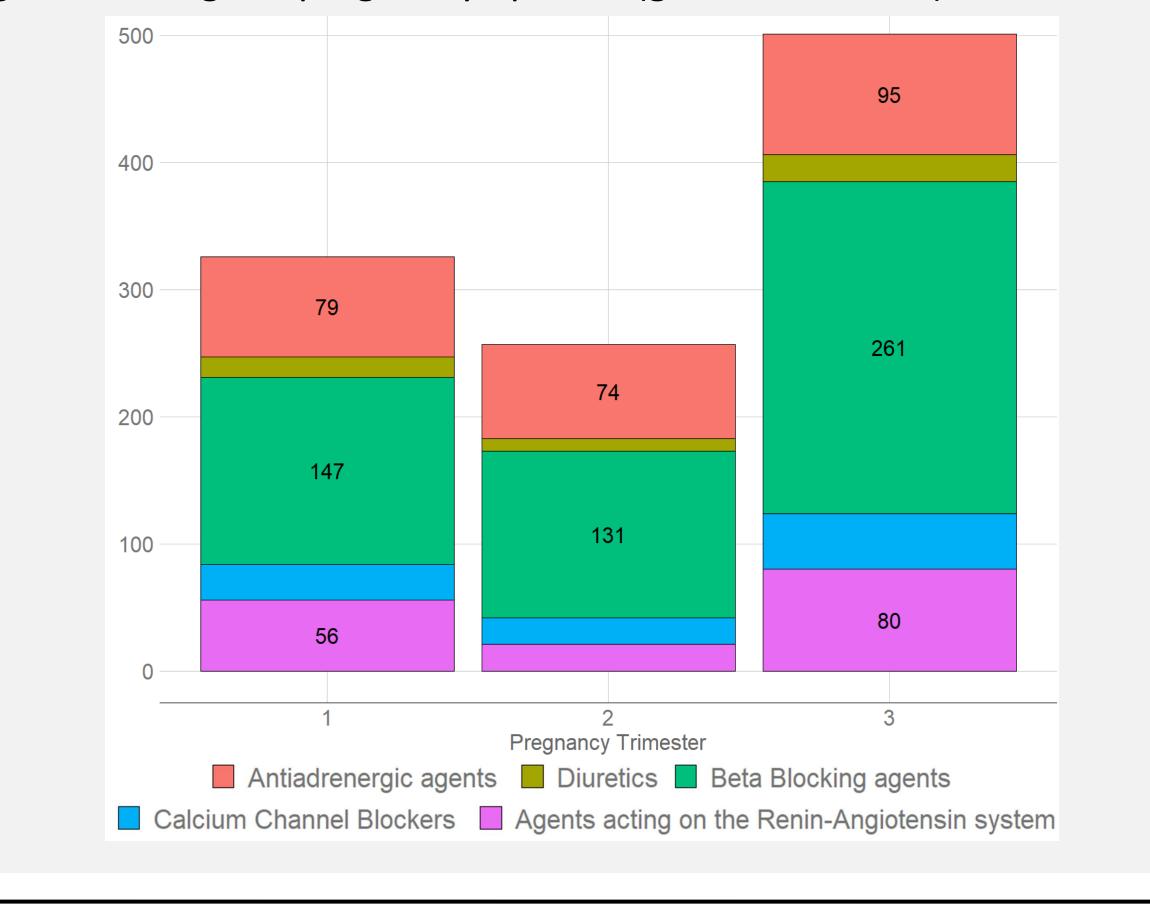


Figure 1a: Distribution by antihypertensive drugs groups for pregnancies with

Figure 1b: Distribution by antihypertensive drugs groups for pregnancies with diagnosis during the pregnancy episode (gestational HTN)



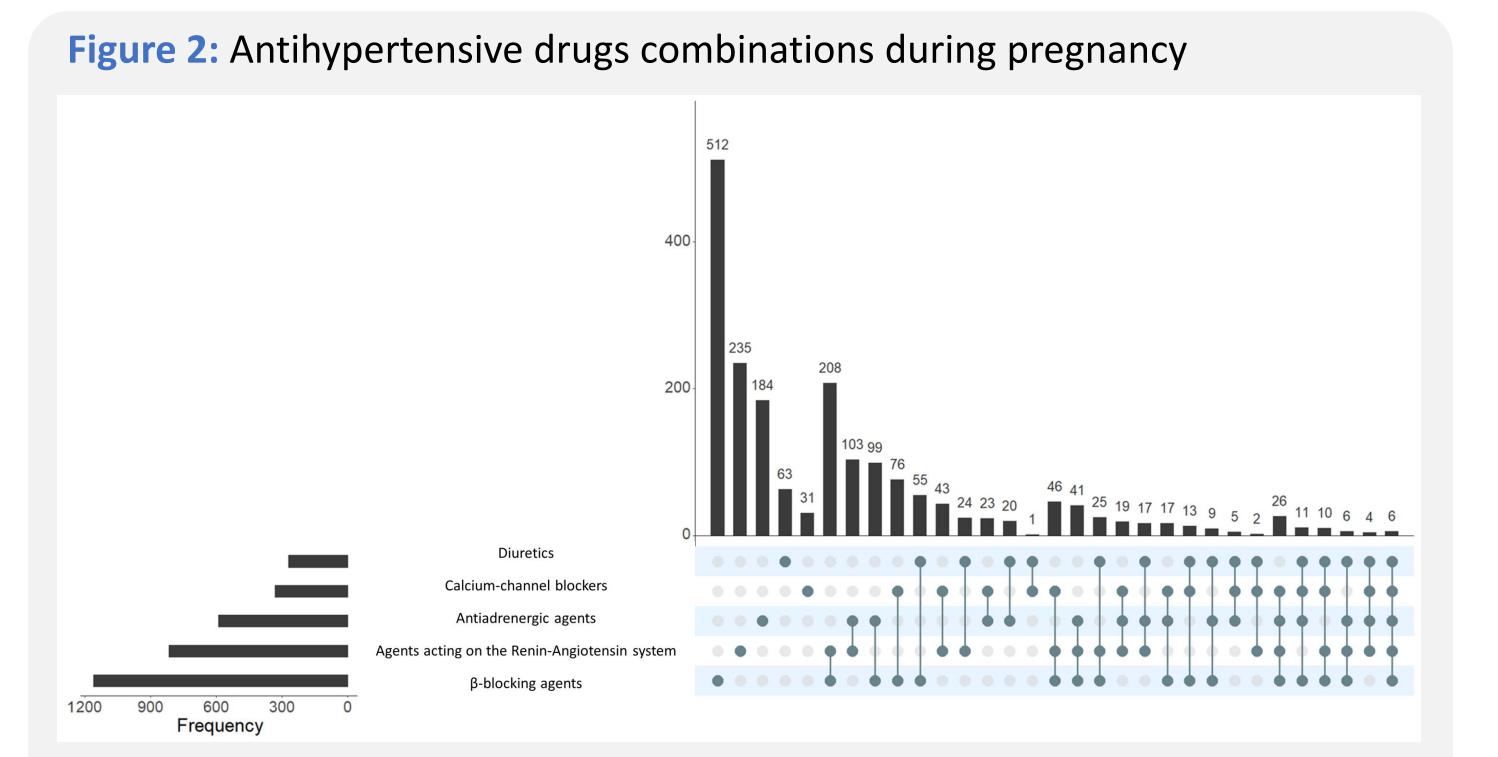
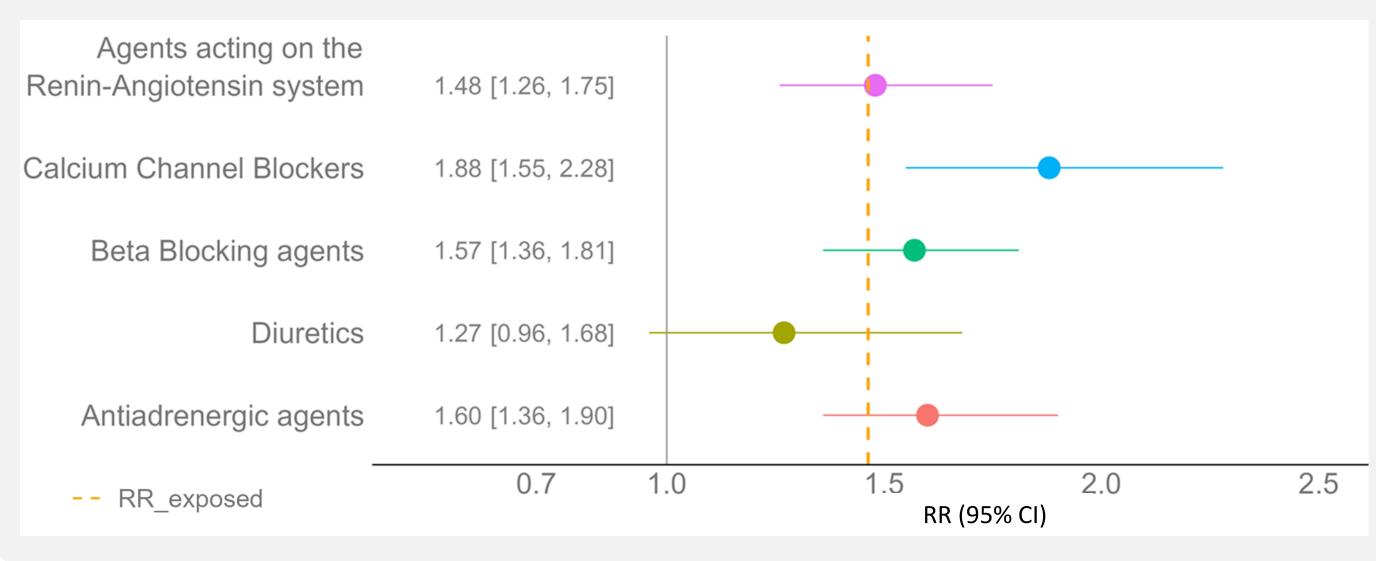


Table 2: Pregnancies episodes stratified by time of HTN diagnosis and antihypertensive drugs exposure

HTN diagnosis	Exposure to antihypertensive drugs	
	Yes	No
Before pregnancy episode	1415	1563
1 st trimester	190	283
2 nd trimester	104	161
3r trimester	225	898

Figure 3: Risk of preterm birth



Conclusions

- In SIDIAP pregnancies with HTN were exposed to HTN drugs. β-blocking agents were the most used
- Abortions rates were similar to those nationally described

- Treated pregnancies were associated to preterm births, though indication bias cannot be ruled out
- We plan to conduct a study focus on the RAS agents use during pregnancy and its outcomes in the offspring