

# Reality of Hypertensive Patients from the Uruguay River Coast Assisted by Specialists in Cardiology (Río Uruguay Registry I)

*Realidad de los pacientes con hipertensión arterial de la costa del río Uruguay asistidos por especialistas en cardiología (Registro Río Uruguay I)*

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## ABSTRACT

**Background:** Hypertension is one of the main factors that increase the “burden” of atherosclerotic disease.

**Objective:** The aim of this study was to analyze the characteristics, treatment and degree of control in patients treated by cardiologists in our area of influence.

**Material and methods:** A cross-sectional study was carried out in 13 cardiology offices analyzing hypertensive patients' clinical characteristics, blood pressure and pharmacological treatment.

**Results:** A total of 519 patients with the following characteristics were enrolled during a 3-month period: 44.9% were men, mean age was 61.5 years, the spell of hypertension was 11.2 years, 24% of patients had cardiovascular disease and mean blood pressure was 133/79.8 mmHg. Among patients without cardiovascular disease, 73% had low cardiovascular risk (<10%). Hypertensive treatment showed that 39.1% of patients were receiving two drugs, 26.8% three, 24.7% one, 7.9% four and 1.35% five drugs. Finally, 60.5% of patients was within the target blood pressure (<140/90 mmHg).

**Conclusions:** Hypertensive patients evaluated in our geographical area presented low cardiovascular risk and high use of pharmacological combinations. Pressure targets were achieved in 60% of cases.

**Keywords:** Hypertension - Argentina / epidemiology - Risk factors

## RESUMEN

**Introducción:** La hipertensión es uno de los principales factores que aumentan la “carga” de la enfermedad aterosclerótica.

**Objetivo:** Analizar las características, el tratamiento y el grado de control en pacientes atendidos por cardiólogos en nuestra zona de influencia.

**Material y métodos:** Se realizó un estudio transversal en 13 consultorios de cardiología donde se analizaron las características clínicas, tensión arterial y tratamiento farmacológico.

**Resultados:** Se enrolaron 519 pacientes en 3 meses, hombres: 44,9%, edad: 61,5 años, tiempo de hipertensión: 11,2 años, enfermedad cardiovascular: 24%, tensión arterial promedio: 133/79,8 mmHg. Entre los pacientes sin enfermedad cardiovascular, el 73% tenían riesgo cardiovascular bajo (<10%). El 39,1% recibía dos drogas; el 26,8%, tres; el 24,7%, uno; el 7,9% cuatro; y el 1,35%, cinco drogas. Finalmente, el 60,5% de los pacientes estaba en el objetivo de tensión arterial (<140/90 mmHg).

**Conclusiones:** Los pacientes con hipertensión evaluados en nuestra área geográfica presentaban bajo riesgo cardiovascular y alto uso de combinaciones farmacológicas. El 60% alcanzaban los objetivos de tensión arterial.

**Palabras clave:** Hipertensión arterial - Argentina / epidemiología - Factores de riesgo

## Abbreviations

BP Blood pressure  
CVD Cardiovascular disease

HTN Hypertension  
SAC Argentine Society of Cardiology

## INTRODUCTION

Cardiovascular disease (CVD) is still one of the leading causes of death in mid-income countries; (1) in turn, hypertension (HTN) is one of the main factors increasing the “burden” of atherosclerotic disease.

(2) In the Argentine Republic, there are scarce epidemiological data; however, in the RENATA (3) and RENATA 2 (4) studies, as well as in the registry of the city of La Plata (5), the prevalence of HTN is around 25% to 30% of the population. Our country

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is governed by a highly segmented and fragmented health system, which leads to a significant disparity of care in different regions. (6) There are no data on the control of blood pressure (BP) on the coast of the Uruguay River in the Province of Entre Ríos. We consider it of utmost importance that the regional districts of the Argentine Society of Cardiology (SAC) promote cross-sectional studies to understand the reality of our area.

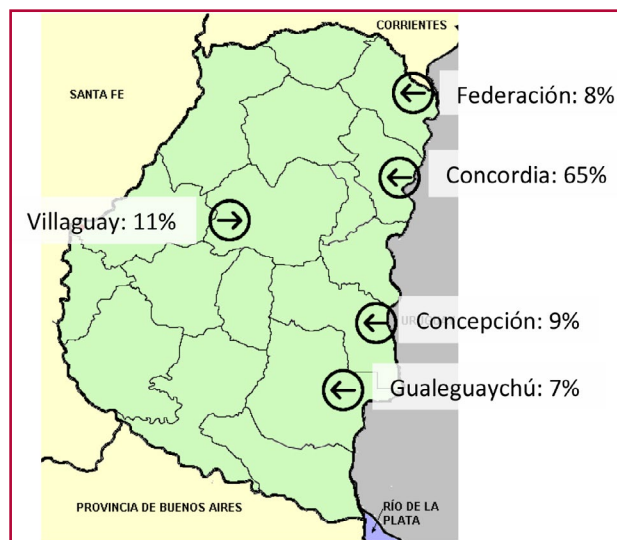
The aims of this study included the analysis of the clinical characteristics, treatment modalities and degree of BP control in patients with history of HTN treated by cardiologists on the coast of the Uruguay River (Province of Entre Ríos).

## METHODS

A cross-sectional study was conducted in 13 cardiology offices of the SAC Río Uruguay District, in the departments of Federación, Concordia, Villaguay, Gualeguaychú and Concepción del Uruguay (map 1). Patients over 18 years of age, with a history of HTN of more than 3 months of evolution, attending the cardiology office in odd numbers (1st, 3rd, 5th, etc.) for three months were included in the study. Blood pressure was controlled with digital sphygmomanometers on 3 occasions according to the recommendation of the latest SAC HTN consensus, and the mean of the last two measurements was recorded. In addition, history of CVD, medication and anthropometric measurements were completed. The WHO cardiovascular risk score was calculated in patients between 40 and 80 years of age without CVD. In addition, the Morinsky Green adherence test and a low sodium diet adherence questionnaire were administered. "Adequate blood pressure control" was defined as reaching the therapeutic goal <140/90 mmHg according to the SAC consensus. (7)

## Statistical analysis

EpiInfo was used to analyze the data. Means, medians,



**Map 1.** Departments of the province of Entre Ríos that participated in the study (% of patients included).

standard deviations and interquartile ranges were used as appropriate. Student's *t* test was used to compare means and the chi square or Fisher's tests for dichotomous variables.

## Ethical considerations

This study was carried out with the approval of the SAC research area. No personal data that could identify the patient was collected. No procedures or studies were required beyond a regular medical office consultation.

## RESULTS

A total of 519 patients were included in the study: 233 (44.9%) were men, mean age was  $61.5 \pm 12$  years, the spell of HTN was  $11.2 \pm 9$  years (median 10), BMI was 29.4 (19-47), and mean BP was 133/79.8 mmHg. Three hundred and fifty-five patients (68%) had abdominal obesity, 22 (4.2%) were current smokers, 87 (16.8%) were diabetic, 267 (61.4%) had dyslipidemia, and 124 (24%) had CVD. Among patients without CVD, the WHO cardiovascular risk score calculated in 364 patients showed that 73% had low risk (<10%), 19.5% intermediate risk (10%-20%); 4.6% high risk (20%-30%) and 2.2% very high risk (>30%).

Women had lower BP, as well as lower smoking habits, but higher abdominal obesity and sedentary lifestyle (Table 1).

Among the different age groups (<34, 35/45, 46/54, 55/65, and >65 years) no statistically significant differences were observed in achieving the therapeutic objective (Figure 1).

Thirty-six per cent of patients adhered to a low sodium diet and 72% to pharmacological treatment. Use of drugs and their combinations showed that 379 patients (70.7%) were receiving angiotensin receptor blockers (ARBs), 248 (50.1%) beta-blockers (BB), 219 (42.9%) calcium channel blockers (CCB), 192 (39.1%) diuretics (Diur), 93 (19.8%) angiotensin converting enzyme inhibitors (ACEI) and 31 (6.4%) antialdosterone agents (AA). No significant differences between sexes were found in the use of antihypertensive drugs, except for ACEI that were less used in women (*p*: 0.04) (Figure 2). Regarding the number of drugs, 39.1% of patients were receiving two drugs; 26.8% three drugs; 24.7% one drug; 7.9% four drugs; and 1.35% five drugs. The most frequently used combination was (ARBs/ACEI)+Diur in 17.3% of cases, followed by ARBs/ACEI+CCB in 14.1%, triple combination of ARBs/ACEI+Diur + CCB in 11.4% and BB+Diur in 2.3% of patients.

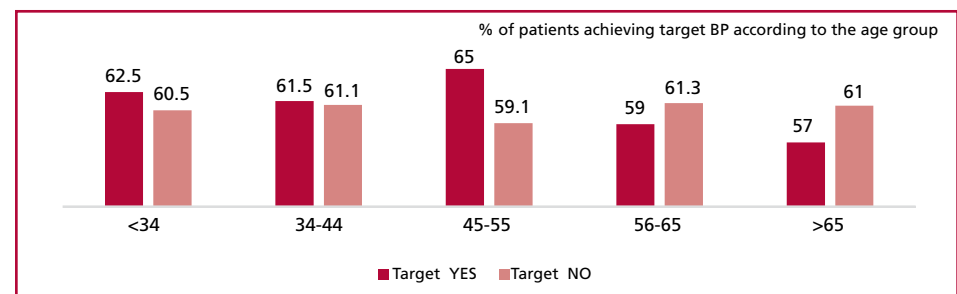
## DISCUSSION

The registry provides, for the first time, regional data on hypertensive patients, their characteristics, therapeutic management and degree of control achieved. We observed a population mostly with no history of CVD, with a high rate of abdominal obesity and low clinical risk (74% with <10% cardiovascular risk). Mean blood pressure (133/79.8 mmHg) was slightly lower than

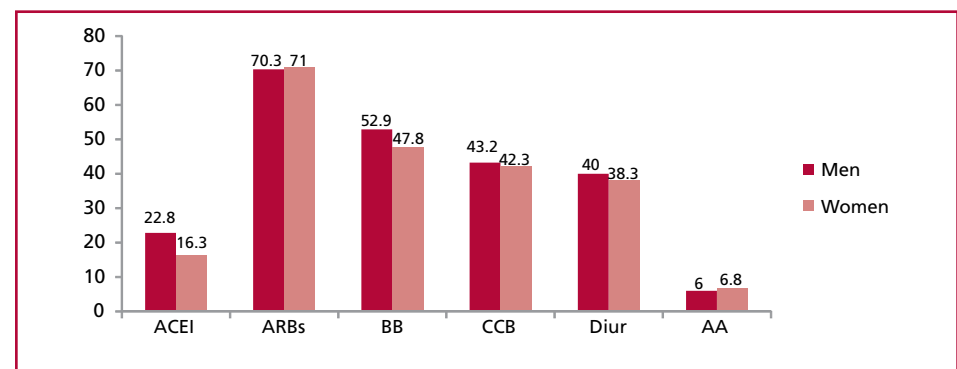
**Table 1.** Patient distribution according to preestablished intervals from onset of symptoms to admission.

	Total	Men	Women	p
SBP (mean±SD)	133.5 ± 15	135 ± 14,4	131.9 ± 15.9	0.002
DBP(mean±SD)	79.8 ± 9.9	81.3 ± 10.9	78.6 ± 8.9	0.002
Smoking, n (%)	22 (4.2)	17 (7.3)	5 (1.7)	0.001
Diabetes, n (%)	87 (16.8)	43 (18.4)	44 (15.4)	0.1
Dyslipidemia, n (%)	267 (61.4)	124 (53)	143 (50)	0.2
Sedentarism, n (%)	118 (22.7)	44 (18.9)	74 (25.9)	0.02
Abdominal obesity, n (%)	355 (68)	135 (57)	220 (76)	0.001

**Fig. 1.** Target blood pressure achieved by age group



**Fig. 2.** Drugs used according to gender (%)



that observed in the Argentine PURE study (135/82.8 mmHg). (8) Adherence to treatment was high compared to the ENSAT study, which was only of 48.5%. (9) On the other hand, only 1 in 4 patients adhered to a low sodium diet. We observed a high use of ARBs over ACEI, with frequent use of a combination of two or more antihypertensive drugs well above the RENATA 2 study, where use of a combination of drugs was found in less than a third of the studied population. (4) Women had a lower level of systolic and diastolic BP, lower smoking habits and higher obesity, although these characteristics were not reflected in the achievement of the therapeutic target, which had no statistical significance. We also found a better BP control in the age group of 45-55 years, although this difference was neither statistically significant in target attain-

ment, possibly due to the low number of patients.

Regarding BP control, 60% of the patients achieved the therapeutic target which was higher than that of other registries, such as the CardioTens study (Spain), with 55.4% of patients, (10) the RENATA 2 registry with 29%, or the study by Rubinstein et al. with 43.3%, (11) possibly due to the large difference between the populations studied. Nevertheless, 40% of the patients treated by cardiologists did not attain the therapeutic goals.

**CONCLUSIONS**

Patients with HTN evaluated in our geographic area, showed low-risk characteristics, with a high use of pharmacological combinations and with 60% of patients meeting the therapeutic target.

**Conflicts of interest**

None declared.

(See authors' conflicts of interest forms on the website/ Supplementary material)

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