

Use of Antihypertensive Drugs in the Public Primary Care Level in Argentina. Experience of the RemediAR Program

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SUMMARY

Background

Hypertension (HT) is a frequent cause of drug prescription. Argentina experienced a severe socioeconomic crisis at the end of 2001 that caused a drop in access to drugs among the population, with subsequent risks in public health. In response to this situation, the Argentine State implemented the RemediAR Program to supply free medications to people with scarce resources and lack of medical coverage.

Objectives

To analyze the use of antihypertensive drugs in the population assisted by the public primary care level (PCL) in Argentina, and to estimate its effectiveness in terms of the number of people with HT covered by this program.

Material and Methods

Ecological study with cross comparisons of diagnoses, prescriptions and beneficiaries by individual provinces of RemediAR forms. Target population: patients with diagnosis of HT seen at 6000 health care centers in Argentina from March 2005 to February 2006.

Results

The prevalence of HT was 10.4% among 15 millions of prescriptions: 126097 prescriptions per month. This percentage was not homogeneous; it was 3 to 4 times greater in the city of Buenos Aires and in the province of La Pampa compared to the provinces of Salta and Jujuy. Drugs were prescribed as follows: enalapril 77.0%, atenolol 22.1%, hydrochlorothiazide 12.5% and aspirin 7.1%. Based on previous population statistics and on the expected prevalence of HT, we estimated that the RemediAR Program fulfilled variable percentages of the population exclusively under public medical coverage: 57.3% nationwide, with important variations. In total, 74.9% of hypertensive beneficiaries received medication for 4 months a year or less.

Conclusion

The use of thiazide diuretics and aspirin was less than expected according to evidence based practice guidelines. Probably the positive impact on health care related to the supply of drugs was limited by the failure to provide a minimum annual number of effective treatments.

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Key words > Pharmaceutical Preparations - Hypertension - Prescriptions - Drug - Impacts on Health - Public Health

Abbreviations >			
ASA	Acetyl salicylic acid (aspirin)	HT	Hypertension
ARB II	Angiotensin II receptor blocker	ACEI	Angiotensin-converting enzyme inhibitor
PHCC	Primary Health Care Center	INDEC	<i>Instituto Nacional de Estadística y Censos</i> (National Institute of Statistics and Censuses)
DDD	Defined daily dose	PCL	Primary care level
CVD	Cardiovascular disease		
ENFR	National survey of risk factors		

BACKGROUND

Hypertension (HT) is one of the most prevalent risk factors with a great impact in public health associated with the development of cardiovascular diseases

(CVDs). Therefore, it is one of the most frequent reasons for consultation and drug prescription. (1, 2) In Argentina, CVDs account for 32% of deaths, almost 100,000 per year; 52,300 of them might be due to HT. (3) The prevalence of HT increases each year as a con-

sequence of population aging and life styles. The residual lifetime risk for hypertension for a person aged 55 years and free of hypertension is 90%. (4) Data of the prevalence of HT in Argentina come from the First National Survey of Risk Factors (*Primera Encuesta Nacional de Factores de Riesgo*, ENFR), which was conducted for epidemiological surveillance purposes using the self-referential technique: 78.7% of the Argentine population had their blood pressure measured in the last two years; 34.7% of them presented high blood pressure levels in at least one medical visit, and 23.9% (a stricter criterion) in two consultations or greater. (5) The prevalence of self-referential HT in the entire Argentine population would be 4.8 million people using the relaxed criterion or 21.2% (strict criterion), 1.4 million of which would rely exclusively on public health coverage.

The reduction in blood pressure levels has proved to be an effective method to prevent CVDs. (6) Antihypertensive drugs have been evaluated in large clinical trials which have demonstrated that lowering blood pressure reduces the incidence of myocardial infarction, stroke, heart failure and sudden death. (7) Five classes of antihypertensive drugs are used for the initial treatment: thiazide-type diuretics, calcium antagonists, angiotensin-converting enzyme inhibitors (ACEIs), beta blockers and angiotensin II receptor blockers (ARB II). (8-10)

Argentina experienced a severe socioeconomic crisis at the end of 2001 that caused a drop in access to drugs among the population. During 2002, Argentina's retail pharmacy sales of prescription drugs fell by 42%, especially among low-income people. (11) In response to this situation, the Argentine State implemented the Remediar Program. The aim of this program was to supply free medications to people with scarce resources and lack of medical coverage directly from the Primary Health Care Centers (PHCCs). (12) The medication kit selected for the treatment of hypertension consisted of three drugs: enalapril, atenolol and hydrochlorothiazide. In addition, 100 mg of aspirin were added for the prevention of cardiovascular risk. The kit did not include calcium antagonists, ARB II or statins.

Patients had to fill some forms regarding medical diagnosis, prescriptions and demographic data in order to allow the construction of an important database with primary information that may be separated by beneficiary, jurisdiction or age.

The goal of this investigation is to analyze the use of antihypertensive drugs in the population assisted by the public primary care level (PCL) in Argentina, and to estimate its effectiveness in terms of the number of expected people with HT covered by this program, nationwide and in the different provinces. The information available allowed us to analyze the frequency of the diagnosis and prescriptions separated by province and beneficiaries, and to discuss the variability of the indication related to the evidence found in practice guidelines.

MATERIAL AND METHODS

This is an ecological study with cross comparisons of diagnoses, prescriptions and beneficiaries by individual provinces in Argentina's PCL. The study secondary sources of information come from the Remediar Program Forms. The units of analysis are the R-Forms or prescriptions with diagnosis of HT made from March 2005 to February 2006 in almost 6000 PHCCs nationwide.

The **R-Form** is the basic instrument of data collection that proves that the drug prescribed and included in the Remediar kit was delivered to the patient. All prescriptions with a diagnosis of HT, code 351 of the Coding Manual CEPS-AP (statistical classification of health problems presenting in primary health care) are included in the analysis. (13)

The **B-Form** is used to register pharmaceuticals' consumption and consultations by month that each PHCC provides to the program with information consolidated to the last day of the month.

Table 1 synthesizes the methodology used for the analysis of the information.

The prescriptions of the Remediar program allow to report the number of patients identified with a diagnosis of HT, the total number of effective treatments provided and the average of treatments provided per patient-year (*persistence*) in the year studied, separated by province.

The beneficiaries were unequivocally individualized by means of a verification procedure implemented by the *Sistema de Identificación Nacional Tributario y Social* (SINTyS, National System for Social and Tax Identification) based on the identification data obtained from the prescriptions.

Data from the number of beneficiaries of the Remediar Program was crossed with the projections of the ENFR-INDEC in order to estimate the expected prevalence of HT by region and the percentage of people with only public medical coverage.

The estimation of the percentage of the potential population with HT that was effectively covered by the Remediar Program was calculated using the ratio between:

$$\frac{\text{Cases of beneficiaries with HT of the Remediar by province}}{\text{Cases of HT exclusively under public medical coverage by province according to the ENFR}} \times 100$$

The estimated record in the use of the treatment was based on projections according to the continuity required by each patient. "Treatment compliance" was evaluated analyzing the number of months per year that each patient required the treatment during 1 year. "Effective treatment" was defined as the monthly delivery of 30 defined daily doses (DDDs) of a drug per patient.

"Availability" was analyzed as the months of average use covered by the stocks of medicine left at the each center. Yet, if the rate of use of the medication varied, it might constitute a limitation for its prescription.

RESULTS

From a total of 15,001,041 prescriptions recorded during the year of the study, 85% (12,528,567) had valid diagnoses. When the prescriptions with valid diagnoses were compared with those without them, we found similar patterns of prescription. The frequency of the diagnosis of HT was 10.4%, represent-

Table 1. Methodology used for the analysis of the information

Source	Content	Unit of analysis	Principal indicators
R-Form (Remediar prescription)	- Diagnosis code; - Treatment prescribed; - Patient's basic data (age, gender, etc.)	Universe of 15 million prescriptions from February 2005 to March 2006	- Frequency of <i>Diagnosis</i> (prescriptions with a diagnosis of diabetes/total prescriptions); - Frequency of <i>Treatments</i> prescribed per diagnosis; - Frequency of <i>Treatments prescribed per beneficiaries</i>
Crossover information of R-Form and SINTyS database	Identification of Remediar beneficiaries	Population who received Remediar medication	- Number of beneficiaries identified by group, age, province, etc.
B-Form (Monthly Medication Consumption and Consultation Records)	- Consumption per medication; - Stock or availability per medication (in moths); - Consultations (total); and - Remediar prescriptions	Total Forms submitted by PHCC, consolidated to present	- <i>Medication prescription rate</i> per 100 consultations; - <i>Availability</i> (months of average use covered by the stocks of medicine left at the each PHCC); - Average consultations and prescriptions per month; - Remediar prescription rate per consultations

ing the second diagnosis in the general population, with 126,097 prescriptions per month. The analysis of age groups demonstrated that HT was the most frequent diagnosis in the population from the age of 15 years, and it reached a frequency of 35.1% in subjects older than 60 years. In 91% of cases the diagnosis of HT was performed in subjects older than 40 years. The number of consultations due to HT increased with age (Figure 1), until the age of 90 years, when it declined with a limited number of prescriptions.

Hypertension was the only diagnosis provided in 68% of prescriptions, and in the remaining 32% the condition was associated with other diagnoses: diabetes 22%, gastritis 14%, pain 11%, pharyngitis 6%, arthritis 6%, and heart diseases 4%. The medication prescription rate among recipes with a single diagnosis was 1.44 (144 drugs per 100 prescriptions). The most frequent drugs prescribed for HT (as a single diagnosis) are shown in Figure 2.

Figure 3 illustrates the frequency of diagnoses of HT and the associated prescriptions, separated by province.

The stock of antihypertensive drugs at the beginning of the year is detailed in Table 2. Almost in all provinces, only one out of four centers (third quartile) have acceptable stocks of enalapril. However, more than 75% of PHCCs have sufficient stocks of atenolol and hydrochlorothiazide, and almost all PHCCs have enough ASA in stock to satisfy the annual demands.

Table 3 shows the study of the hypertensive population with cross-over information provided by the ENFR and the Remediar Program Forms. Among

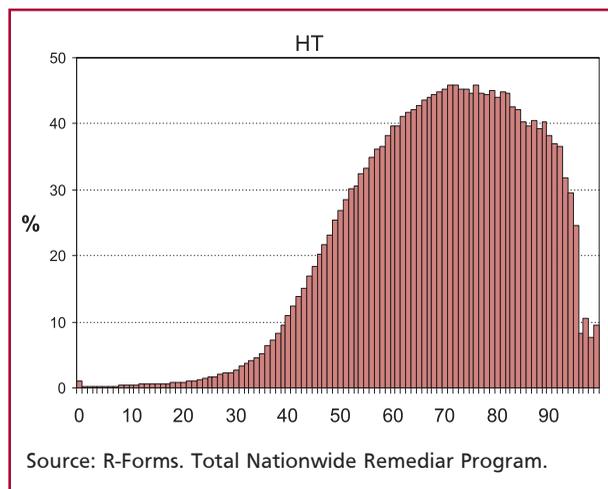


Fig. 1. Distribution of the population with a diagnosis of HT per age (years) (%).

hypertensive beneficiaries, 74.9% receive 5 to 8 treatments and 11.8% receive 9 or greater.

Figure 4 shows the projected percentage of the hypertensive population assisted by the Remediar Program in relation with the population estimated with this diagnosis and only under public medical coverage.

DISCUSSION

Hypertension is a significant health care issue. Due to the fall in Argentina's retail pharmacy sales of pre-

scription drugs as a consequence of the socioeconomic crisis, the Remediator Program was implemented to supply free medications for the treatment of HT in the PCL. The Remediator Program was evaluated by the *Sistema de Información, Monitoreo y Evaluación de Programas* (SIEMPRO, Program Evaluation and Monitoring System). This evaluation revealed that 65% of the free medications used in the PHCCs are supplied by the Remediator Program. (14) This would contribute to reduce cardiovascular morbidity and mortality in accordance with the results shown by large and controlled clinical trials (7, 15-17), with the

greatest benefits reported with intensive blood pressure lowering. (18)

The availability of a database and millions of prescriptions has allowed making some inferences regarding physicians' prescription patterns of antihypertensive drugs and the scope of the Remediator Program on the population with HT and lack of medical coverage.

The analysis confirmed that the diagnosis of HT was a very frequent cause of drug prescription; the incidence increased with age (Figure 1) as it was expected based on previous domestic and international epidemiologic data.

The medication prescription rate among recipes with HT as a single diagnosis was 1.44. Almost half of the patients were treated with at least one combination of antihypertensive drugs according to current trends that recommend low-dose combination therapies instead of high-dose of a single medication. (19)

The selection of antihypertensive drugs showed a striking distribution: enalapril 75%, atenolol 20% and hydrochlorothiazide 12.5%. This trend confirms a worldwide observation: despite controlled trials have demonstrated that the usefulness of thiazide diuretics as monotherapy is similar to other drugs, or even greater, they are prescribed as second-line therapy in daily practice. In our case, as all medications were provided free, cost was not a determining factor. The indication depended on the physician's preference. The ALLHAT study (20) compared the effects of chlorthalidone associated with lisinopril, amlodipine or doxazosin in tens of thousands of patients, and showed that thiazide-type diuretics offered advantages over the other drugs. The "network meta-analysis" that combined data from 42 clinical trials that included

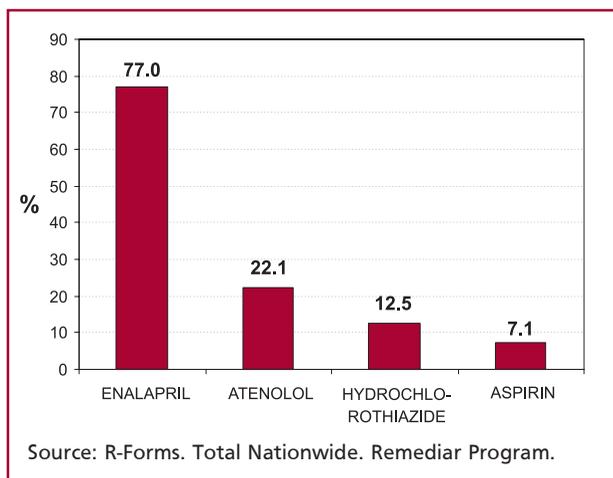


Fig. 2. Frequency of prescription of antihypertensive medications (single diagnosis).

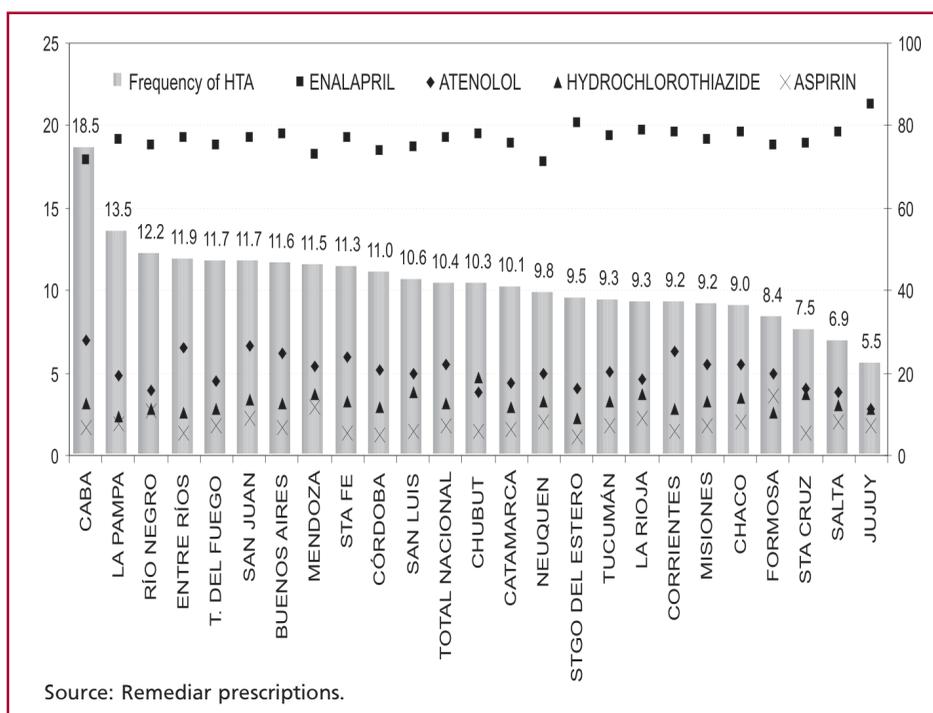


Fig. 3. Frequency of diagnoses of HT and prescriptions, separated by province. Axis, in %. Left: diagnosis frequency. Right: prescription per antihypertensive medication in DDD.

Table 2. Availability of hydrochlorothiazide, atenolol, enalapril and aspirin: median and percentiles 25 and 75. First trimester 2005. Total nationwide

		Medication			
		Hydrochlorothiazide	Atenolol	Enalapril	Aspirin
Availability					
(in months)	Percentile 25	0.9	0.3	0.0	2.8
	Median	3.4	2.7	0.9	9.1
	Percentile 75	11.3	8.6	2.2	32.0

Source: B-Forms. PROAPS-REMIAR. To the first trimester of 2005.

Table 3. Analysis of the hypertensive population in Argentina

Province Name	ENFR - INDEC					
	Population with HT (2 or greater)	Population exclusively under public medical coverage	Total treatments provided (DDD)	Patients with HT	Average treatments por patient with HT	Covered by Remediari (%)
	a	b	c	d	e = c/d	f = d/b
BUENOS AIRES	1,986,505	608,589	972,878	225,099	4.3	37.0
CABA	467,028	66,917	101,905	20,541	5.0	30.7
CATAMARCA	35,631	10,686	58,786	14,861	4.0	139.1
CHACO	114,381	53,704	207,683	44,349	4.7	82.6
CHUBUT	47,177	10,174	39,627	8,792	4.5	86.4
CÓRDOBA	448,417	114,526	325,770	73,188	4.5	63.9
CORRIENTES	94,544	33,647	125,396	32,101	3.9	95.4
ENTRE RÍOS	138,713	39,838	167,851	38,352	4.4	96.3
FORMOSA	44,686	18,163	82,080	21,967	3.7	120.9
JUJUY	53,099	20,817	49,040	11,807	4.2	56.7
LA PAMPA	34,497	13,687	36,960	10,074	3.7	73.6
LA RIOJA	37,179	7,961	67,098	13,694	4.9	172.0
MENDOZA	209,845	63,216	204,587	45,523	4.5	72.0
MISIONES	94,092	37,778	151,756	35,075	4.3	92.8
NEUQUÉN	59,504	23,728	16,129	4,418	3.7	18.6
RÍO NEGRO	65,055	20,125	44,889	11,967	3.8	59.5
SALTA	90,270	44,288	102,084	23,742	4.3	53.6
SAN JUAN	85,992	29,724	80,554	17,683	4.6	59.5
SAN LUIS	41,046	8,638	52,652	12,458	4.2	144.2
SANTA CRUZ	24,556	2,310	7,404	2,031	3.6	87.9
SANTA FE	420,105	102,952	225,294	56,023	4.0	54.4
S. DEL ESTERO	67,003	23,252	126,572	32,215	3.9	138.5
T. DEL FUEGO	14,407	1,741	6,981	1,863	3.7	107.0
TUCUMÁN	168,739	56,380	211,656	49,053	4.3	87.0
TOTAL	4,842,471	1,412,841	3,470,818	809,096	4.3	57.3

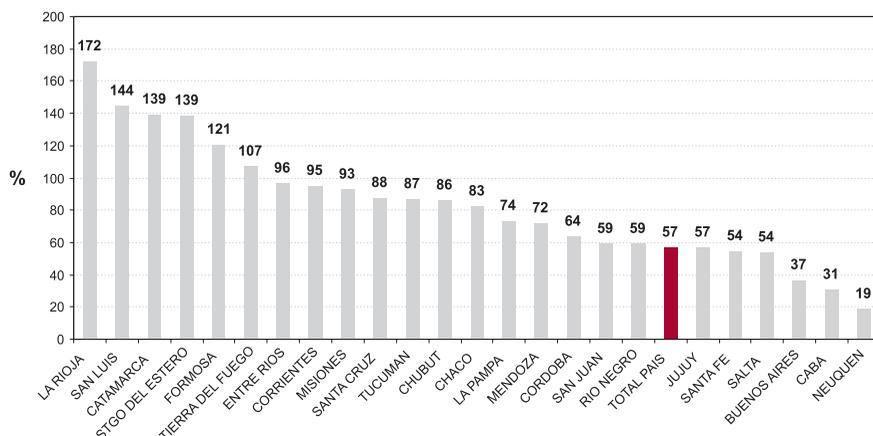
HT: Hypertension. ENFR: *Encuesta Nacional de Factores de Riesgo*. INDEC: *Instituto Nacional de Estadística y Censos*. DDD: Defined daily dose
 Source: Beneficiaries of the Remediari Program and *Encuesta Nacional de Factores de Riesgo*.

192,478 patients, compared, in an individual fashion, the safety and the efficacy of all antihypertensive drugs and therapeutic groups in terms of major cardiovascular disease end points. The conclusion of this meta-analysis is that low-dose diuretics are the most effective treatment for preventing the occurrence of cardiovascular events. (21) The Seventh Report of the Joint National Committee recommends (level of evidence A) thiazide-type diuretics as preferred initial agents, alone or in combination with one of the other classes; however, other therapies should be initiated when a compelling indication that requires the use of a specific drug is present. (8) These recommendations were adopted by the Ministry of Health and the Remediari Program. (22) In 2006, the NICE clinical guideline recommended that the first choice for initial therapy should be either a calcium-channel blocker or a thiazide-type diuretic in hypertensive patients aged 55 or over, and an ACEI in patients younger than 55. Beta-blockers are not a preferred initial therapy for hypertension. (10) Another guideline states that, because in many patients more than one drug is

needed, emphasis on identification of the first class of drugs to be used is often futile, except on special situations. Yet the guideline suggests to consider the medication costs at the moment of choosing a drug (thiazide-type diuretic are the cheapest drugs). (9)

Thiazide diuretics are safe and affordable, and should be recommended as the best first-line drug for hypertension in a primary health care setting, yet they are not prescribed as often as some newer drugs, probably due to marketing strategies implemented by the pharmaceutical industry which generate a medical culture that conditions drug selection. Other obstacle at the moment of indicating diuretics is the negative prejudice against prescribing these drugs, especially to the elder.

According to the information provided by the Remediari Program, aspirin was indicated in only 7% of prescriptions with a diagnosis of HT. Most of these patients concentrate different risk markers that should have guided the indication of aspirin, as it has been demonstrated that it may reduce the incidence of cardiovascular events by 25%. (23, 24) However,



Source: Beneficiaries of the Remediar Program and *Encuesta Nacional de Factores de Riesgo*.

Fig. 4. Hypertensive population assisted at the PCL with medications supplied by the Remediar Program per 100 hypertensive patients exclusively under public medical coverage.

patients might have purchased aspirin (100 mg) due to the low price of this medication, and subsequently, the Remediar Program was not able to estimate the real number of prescriptions. Yet, the low income level of the beneficiaries of the Remediar Program makes us think that this low percentage might indeed reflect the reality of the problem.

The reduced use of thiazide diuretics and aspirin cannot be attributed to a shortage of medication as the stocks of medicines in the PHCCs were very important during the study period. Conversely, the greatest prescription rate of enalapril reached a ceiling under circumstances of low availability (Table 2). This feature of low indication of thiazide diuretics and aspirin was detected from the onset of the Remediar Program and showed a few modifications in the next years. (25, 26)

Management of diagnosis and treatment of HT showed variations (Figure 2). Among patients consulting to a PHCC, the probability of being diagnosed with HT is two to three times greater in the city of Buenos Aires or in the province of La Pampa compared to the provinces of Salta and Jujuy. This variation is not related to epidemiologic differences among the jurisdictions, according to the prevalence observed in the ENFR. (5) The variability in clinical practice may cause inequity, as the probability to benefit from the diagnosis and treatment of HT under similar epidemiologic conditions, depends on the site of consultation. (27)

We can estimate the population with hypertension that has no medical coverage nationwide and by district, based on the *Encuesta Nacional de Factores de Riesgo*. Which is the proportion of patients with HT not covered by any health insurance program that was supplied with medications by the Remediar Program? The initial question is if those 126,000 prescriptions per month with a diagnosis of HT represent 126,000 hypertensive patients that sought medical care at the PHCCs each month. If the target population under

public medical coverage is estimated in 1,412,841 hypertensive patients, the program would have covered 8.9% of the population. The individual analysis of the beneficiaries from the prescriptions identified 809,096 patients with hypertension treated during the year of the study with medications provided by Remediar, which means that 57.3% of the potential population accessed the Program (Table 3). In some provinces like La Rioja, Catamarca or Santiago del Estero, this figure exceeded the one estimated by previous surveys, suggesting that even patients with health coverage were assisted by Remediar. Conversely, other provinces like Neuquén or the City of Buenos Aires had low utilization rates of the Program; this observation suggests that these regions used less the medications provided by the Remediar Program to assist their hypertensive population without medical coverage in the PCL (Figure 4).

Notably, the registry showed that the request of supplies of antihypertensive medication was persistently low, and the median number of effective treatments per beneficiary was 4.3 per year, and only 11.8% of beneficiaries receive 9 treatments or greater. We know that antihypertensive treatment should be administered throughout the whole year to achieve impact on health care, and that the majority of patients need at least two treatments (medications) per month. (8-10) Due to the characteristics of the Remediar Program records, it is impossible to estimate if patients purchased the medication by their own means in the remaining months or if they used other treatments that were not covered by the Program. However, this inconsistency in the use of antihypertensive medications is not infrequent in other health care settings. (28) In the United States, the country with the best rate of HT control, the results of health surveys which are performed periodically since 1971 –National Health and Nutrition Examination Survey (NHANES)–, show that only 68.9% of patients with HT are aware of their condition; 58.4% of them are treated with antihyper-

tensive agents. Among those treated, HT control is achieved in 53.1% or in 31% of all hypertensive patients. (29) The level of HT control is lower in Europe or Canada (10-17%). (30) The lack of adequate control is a universal problem for the treatments with hypoglycemic agents, (39), lipid-lowering drugs, (32) or medications for coronary artery disease. (33)

Ecological studies (without evaluation of medical histories) are frequently biased due to difficult control for confounders. (34) The study may be influenced by confounding factors as the presence of covariates is not investigated in the records. For example, there is no information whether the medication has been provided by other source; however, personal communications with the responsible authorities of the jurisdictions as well as the evaluation of the Program performed by SIEMPRO (14) may minimize this limitation. The association between variables observed in the population level cannot be extrapolated to the individual level, constituting an ecological fallacy. Socioeconomic variables were not analyzed, yet 71% of beneficiaries lived under the poverty line, 23% were poor, and 84% were not covered by any health insurance program. (14) Another limitation of the study is related with the quality of the records used: absence of a diagnosis in 16% of prescriptions (a finding similar to the total) and 8.6% without data to identify the beneficiaries. The quality of diagnosis was adequate according to a publication, and the comparison between the code number and the text is coincidental in about 87.4% of cases. (35)

The study supplies interesting information that may be helpful to elaborate a hypothesis for domestic projects for the treatment of HT. Several cultural, socioeconomic and emotional factors interact producing barriers that prevent access to treatment. (36)

From a perspective of the health care system, the following hypotheses for low treatment compliance with antihypertensive medication may serve in an attempt to modify future interventions:

a) Rational prescription limitations (suggested in our study by the variability in the diagnosis of HT in the different regions), b) a small number of the population sought medical care (only 57% of the potential hypertensive people consulted the PHCCs during that period), c) poor individual adherence to treatment (with a median number of 4 effective treatments supplied per beneficiary), d) problems related with the availability of medication (discontinuity in the provision) and with medical care, e) failure in the definition in the services network (pitfalls in the reference and counterreference system), f) PHCCs orientated to solve urgent consultations instead of programmed visits, g) lack of development, diffusion and implementation of evidence-based Clinical Practice Guidelines, (37) h) lack of an alarm system to detect failure to comply with follow-up or discontinuity of medical care, leading to implementation of activities outside the Primary Care Level. (28)

In conclusion, HT is a frequent reason for consultation in the PCL. In spite of the fact that the Program had sufficient stocks of essential medications, the positive impact on health care related to the supply of drugs was limited by the failure to provide a minimum annual number of effective treatments. It is evident that although access to medications is a necessary condition for an adequate treatment, it is not sufficient, and we have discussed the different aspects that should be taken into account in order to extend the benefits to a greater segment of the population. The variability in clinical practice is an aspect that should not be minimized, as it may cause inequity in medical care and should be explored prospectively.

RESUMEN

Uso de medicamentos en hipertensión arterial en el primer nivel de atención pública argentina. La experiencia del Programa Remediare

La hipertensión arterial (HTA) es un motivo frecuente de prescripción. La Argentina fue afectada a fines de 2001 por una severa crisis socioeconómica que disminuyó el acceso de la población a los medicamentos, con los consiguientes riesgos sanitarios. Como respuesta desde el Estado, se implementó el Programa Remediare para proveer en forma gratuita medicamentos a la población de escasos recursos y sin cobertura social.

Objetivos

Analizar el uso de medicamentos antihipertensivos en la población atendida en el primer nivel de atención (PNA) pública de la Argentina y estimar en forma proyectada su efectividad en términos de cobertura de la población esperada con HTA.

Material y métodos

El presente es un estudio ecológico con cruce de diagnósticos, prescripciones y beneficiarios por provincia de las recetas del Programa Remediare. Población objetivo: pacientes con diagnóstico de HTA atendidos en 6 mil centros de salud de la Argentina desde marzo de 2005 hasta febrero de 2006.

Resultados

En 15 millones de recetas, la frecuencia referida de HTA fue del 10,4%: 126.097 recetas mensuales. Este porcentaje no fue homogéneo, ya que resultó 3 a 4 veces mayor en la ciudad de Buenos Aires y la provincia de La Pampa que en las provincias de Jujuy o Salta. La frecuencia de prescripción fue: enalapril 77,0%, atenolol 22,1%, hidrocortiazida 12,5% y aspirina 7,1%. Sobre la base de estadísticas poblacionales previas y la prevalencia esperada de HTA, se pudo estimar que el Programa Remediare alcanzó a cubrir porcentajes variables de la población con cobertura pública exclusiva: 57,3% en todo el país, con grandes variaciones. El 74,9% de los beneficiarios hipertensos recibió tratamientos suficientes para 4 o menos meses por año.

Conclusión

La utilización de tiazidas y de aspirina fue menor que la esperada de acuerdo con las guías de práctica clínica basada en evidencias. Es posible que el impacto sanitario positivo

de la provisión de medicamentos se haya visto limitado por la falta de cumplimiento de un mínimo anual de tratamientos efectivos.

Palabras clave ► Preparaciones farmacéuticas - Hipertensión - Prescripción de medicamentos - Impactos en la salud - Salud pública

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Competing interests

None declared.