Patterns of hormonal contraceptive use in a population of Colombia

Subtitle: **[Patrones de uso de anticonceptivos hormonales en una población de Colombia]**

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Background

Hormonal contraceptives are indicated for the prevention of pregnancy. They are also useful in the treatment of acne, the prophylaxis of menstrual migraine, the management of menstrual disorders, among others.

The Colombian Health System offers universal coverage, which has a benefit plan that covers different types of hormonal contraceptives for oral and parenteral use, which frequency of use and prescription patterns have not been described in detail.

Objective

To determine the frequency and patterns of use of hormonal contraceptives in women over 15 years of age covered in the Health System in Colombia.

Methods

A cross-sectional study was conducted, which included information on women over 15 years of age from a population database with more than 6.5 million people affiliated with the Colombian Health System contributory regime, in six different Health Promoting Entities (EPS). We included patients who had a prescription of a hormonal contraceptive for at least three continuous months (April 1, 2016 until June 30, 2016) to guarantee a continuous dispensing and adherence to the contraceptive. The patients could be from all the different cities of Colombia where medications are dispensed by the logistics operator Audifarma S.A. Exclusion criteria were not considered.

A database was created including the following groups of variables:

1. Sociodemographic.
2. Pharmacological / Contraceptives: Type of hormonal contraceptive prescribed: a) oral; b) injectable; c) subdermal implant; d) hormonal intrauterine device; e) vaginal ring; f) patch. The prescribed doses and number of presentations were obtained.
3. Co-medications / comorbidities.

A database was designed in Microsoft Excel. For the analysis of the data, the statistical package SPSS Statistics, version 23.0 (IBM, USA) for Windows was used. Univariate analyzes were performed with frequencies and proportions for categorical variables and measures of central tendency, position and dispersion for quantitative variables according to their normality behavior (Kolmogorov - Smirnov test). For the bivariate analyzes, Student's t-tests were used to compare quantitative variables and X2 for categorical variables. Logistic regression models were used to identify variables that were associated with the use of comedications. A p <0.05 was determined as a level of statistical significance.

Table 1. Hormonal contraceptives used by study population

Hormonal Contraceptives	Contraceptive	n	%	Doses (mg/day)	Age (mean ± SD)
Injectable	**Injectable Total**	**28396**	**82.8**		
	General (three months)	**6569**	**19.1**		**29.4 ± 8.9**
	Medroxyprogesterone (150mg)	6569	19.1	1.6	29.4 ± 8.9
	General (one month)	**21621**	**63,0**		**26.6 ± 7**
	Medroxyprogesterone/estradiol cypionate (25+5mg)	20160	58.8	0.8+0.16	26.6 ± 7
	Norethisterone (norethindrona)/estradiol valerate (50+5mg)	1667	4.9	1.6+0.16	27.5 ± 6.6
Contranceptive implant	**Contraceptive Implant Total**	**2551**	**7.4**		**24.1 ± 5.9**
	Levonogestrel (75mg)	453	1.3	NA	24 ± 5.7
	Etonogestrel (68mg)	2099	6.1	NA	24.2 ± 5.9
Hormonal Intrauterine Devices	**Hormonal Intrauterine Devices Total**	**139**	**0.4**		**39.9 ± 7.6**
	Levonogestrel (13.5mg)	1	0.0	NA	32.4
	Levonogestrel (52mg)	138	0.4	NA	39.9 ± 7.6
Oral contraceptives	**Oral Contraceptives Total**	**4162**	**12.1**		**28.4 ± 7.6**
	Cyproterone /ethinylestradiol (2+0.035mg)	15	0.0	2+0.035	25.3 ± 6.7
	Desogestrel (0.075mg)	4	0.0	0.075	35.8 ± 4.5
	Dienogest/Estradiol valerate (1+2+3mg)	2	0.0	2+0.03	16
	Dienogest/ethinylestradiol (2+0.03mg)	9	0.0	2+0.03	29 ± 7.1
	Drospirenone/ethinylestradiol (3+0.02mg)	19	0.1	3+0.02	26.6 ± 5
	Drospirenone/ethinylestradiol (3+0.03mg)	5	0.0	3+0.03	23.9 ± 6.8
	Gestodene/ethinylestradiol (60+15mcg)	1	0.0	0.060+0.015	41.2
	Levonorgestrel/ethinylestradiol (0.1+0.02mg)	839	2.4	0.1+0.02	27.1 ± 6.8
	Levonorgestrel/ethinylestradiol (0.15+0.03mg)	2895	8.4	0.15+0.03	28.7 ± 7.9
	Levonorgestrel/ethinylestradiol (0.25+0.05mg)	133	0.4	0.25+0.05	29.9 ± 8.3
	Norethisterone (norethindrone)/ethinylestradiol(1+35mg/mc	281	0.8	1+0.035	28.8 ± 6.5

Table 2. Variables associated with having any comedication in logistic regression model

Dependent variable: Have prescription of comedications				
Variable	Sig	OR	95% CI	
			Lower	Upper
Age group				
Adolescents (<18years)	<0.001	1.0 (ref)		
Age between 18 and 30 years	0.005	1.442	1.115	1.866
Age between 30 and 45 years	<0.001	2.322	1.787	3.017
Age over 45 years	<0.001	7.551	5.64	10.109
City:				
Being treated in Bogotá	<0.001	1.0 (ref)		
Being treated in Manizales	<0.001	1.558	1.329	1.826
Being treated in Cartagena	<0.001	1.387	1.178	1.632
Being Treated in other cities	<0.001	1.237	1.11	1.377
Use of:				
Oral contraceptives	<0.001	1.82	1.372	2.414
Hormonal intrauterine device	0.001	2.454	1.451	4.151
Subdermal implant	<0.001	0.492	0.332	0.73
Monthly injectable contraceptive	0.058	1.324	0.991	1.77
Quarterly injectable contraceptive (medroxyprogesterone)	<0.001	1.759	1.31	2.363

Results

34309 women who were receiving hormonal contraceptives for a period of 90 continuous days were identified, with an average age of 27.2 ± 7.1 years (range: 13 - 60.8 years), and mainly in the range between 18 - 29 years: 61.4% (n = 21076).

Among the most commonly used contraceptives were injectable for monthly application (63.0%), followed by injectable for application every three months (19.1%), oral (12.1%), subdermal implants (7, 4%) and finally the hormonal intrauterine devices with 0.4% (See table 1).

Comedications

In the total sample, 5.7% of the patients (n=1957) were receiving some comedication. Among these, the most prevalent was the use of antihypertensive drugs (n=992, 2.9%), followed by antimigraine drugs (n=653, 1.9%) and antiischemic drugs (n=193, 0.6%).

Multivariate analysis

The multivariate analysis showed that increasing age (especially after age 45), those from any city other than Bogotá, those who used oral contraceptives, quarterly injectable contraceptives or hormonal intrauterine devices had a higher probability of receiving any other medication. While those with subdermal implants were less likely to receive medications for some comorbidity (see table 2).

Discussion

In this study, it was possible to determine the prescription patterns of hormonal contraceptives in a group of patients affiliated with the Colombian Health System during 2016, identifying those contraceptives with the greatest dispensation and the medications received by these patients.

The results showed that the vast majority of women in Colombia are receiving through the health system injectable hormonal contraceptives, and oral preparations are employed by a much smaller number in all the cities evaluated. In general, these are young women without comorbidities that require medications for their treatment.

Similar investigations conducted in the United States found that oral contraceptives were used by 64% of patients, which is consistent with the findings of the United Nations, where it was reported that these types of presentations were the most widely used in regions such as Africa and Europe.

Those findings contrast with the results obtained in the present investigation, where injectable preparations predominated, well above the oral ones, with a ratio of 6.8: 1.

Some of the explanations for this phenomenon include the fact that the list of drugs of benefits plan in the Colombian Health System includes only those oral contraceptives of first and second generation, which contain high doses of estrogen and considerably high progestogens, which has been associated with a higher rate of adverse reactions, which is why the prescribing physician and the users may prefer those of the third and fourth generation. The later can only be accessed with pocket payment, generating inequities for women with limited economic resources.

With the previous findings, it can be concluded that Colombian women are mainly being prescribed with injectable presentations of hormonal contraceptives and, in general, had few comorbidities, although some patients have cardiovascular conditions that may involve a potential risk of thrombotic events.

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