Original

Characteristics of Prenatal Care of Pregnant Adolescents, Department of Obstetrics, Hospital "Dr. Rafael Angel Calderón Guardia", 2010

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Abstract

Aim: To compare perinatal results of pregnant adolescents that attend the prenatal control consultation at HCG with those published by the CLAP for adolescent population in Latin America.

Materials and methods: 360 medical records of pregnant patients under 18 years, that undertook prenatal control at the Adolescents' Clinic of the Department of Obstetrics of the HCG in 2010, were studied. The variables included in the study were those related with prenatal care, childbirth and postpartum.

Hypothesis Testing was used to compare the results obtained in this investigation with those reported by the CLAP. 1.96 was adopted as the critical value from Z distribution (p <0.05).

Results: This study showed that maternal morbidity and mortality of adolescent patients that received attention in our hospital is lower than that reported by the CLAP. Although there was a higher percentage of some diseases such as urinary tract infections or anemia in our population, this might be due to a better case detection system rather than to an increase in disease. With regard to the newborn, there were no significant differences with respect to the percentage of preterm births, low birth weight or very low birth weight. The fact that approximately 97% of patients had their labor at term or close to it (more than 34 weeks gestation) and having a Neonatal Intensive Care Unit could explain the low neonatal mortality present in our study's adolescents.

Conclusions: Maternal and neonatal morbidity and mortality in adolescent patients that received attention in our hospital is lower than that reported by CLAP for adolescent populations.

Keywords: Adolescents, pregnancy, prenatal control.

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Maternal-Fetal Department Calderón Guardia Hospital, CCSS. Abbreviations: CCSS, CajaCostarricense de Seguro Social [Costa Rican Social Security Institution]; CLAP, Centro Latinoamericano de Perinatologíay DesarrolloHumano [Latin American Center of Perinatology and Human Development]; STDs, Sexually Transmitted Diseases; HCG, "Dr. Rafael Angel Calderon Guardia" Hospital.
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Teenage pregnancy has been considered a public health problem worldwide because it prevails in a population group with inadequate socioeconomic conditions and because it lacks the necessary support and attention.[1-3] Also, it has been associated, among others, with an increase in adverse outcomes such as low birth weight, preterm birth, maternal and perinatal death.[4-7]

In 2005, the Centro Latinoamericano de Perinatología y DesarrolloHumano [Latin American Center for Perinatology and Human Development] (CLAP) published a study that showed morbidity and mortality associated with pregnancy in Latin American adolescents. In this study, the results for this population were compared with those for patients aged between 20 and 24 years. It reached the conclusion that adolescence was an independent risk factor for an adverse perinatal outcome.[8]

However, Costa Rica accounted for only 2.2% of the total population studied and over 80% of the patients enrolled came from South American countries such as Uruguay, Argentina, Peru or Colombia, among others, with epidemiological profiles and health coverage different to ours.

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The purpose of the hereby-described study was to compare the obstetric outcomes obtained in our hospital with the ones derived from CLAP's research.

Method

We did an analytical observational cross-sectional study based on the clinical records of the adolescents that received prenatal care during the study's period. This research was approved by the Research Ethics Committee of the HCG prior to its execution (Document CLOBI-13-11-2010).

Using a consecutive non-probability sampling, 360 medical records were included and analyzed. These records corresponded to pregnant patients under 18 years that undertook prenatal care at the Adolescents' Prenatal Clinic of the Department of Gynecology and Obstetrics of the Calderon Guardia Hospital in the period between January 1st and April 4th 2010 (on this date the total sample was completed). The sample size was calculated based on the 2340 adolescent patients treated at the Calderon Guardia Hospital during 2009 and on a maximum complications prevalence of 50%. An error. =0.05 and an error. =0.80 was estimated, for which System Statcalc of the EpiInfo 2002 program was used.

The analysis excluded any patient who had an incomplete form of any of the variables of interest that would not allow meeting the study's objectives.

The patients were identified using the daily schedule of the Adolescents' Prenatal Care Clinic Consultation. The medical record number of each patient was obtained from the schedule in order to request the record for review. In case the patient met the exclusion criteria, a new one replaced her in a consecutive manner.

The maternal variables related to prenatal care included were: age in years, marital status, occupation, school dropout, use of licit and illicit drugs, age of first intercourse, number of sexual partners, history of sexual transmitted diseases, history of sexual abuse, number of pregnancies, history of use and type of birth control method, desired pregnancy, history of abortions, morbidity previous to pregnancy, pregnancy-induced morbidity, number of prenatal care visits, pre-pregnancy body mass index and weight gain during pregnancy, number of hospitalizations during pregnancy and pre-delivery hemoglobin.

The variables analyzed related to child birth were: gestational age in complete weeks, type of delivery, use of episiotomy, presence of tears and presence and type of postpartum complications.

The neonatal variables studied were: sex, weight at birth in kilograms, height in centimeters, head circumference in centimeters, Apgar score at 5 minutes, need for neonatal resuscitation, need for hospitalization, number of days in hospital and newborn's condition when discharged.

The information was collected using a spreadsheet designed for this study.

The EpiInfo 2002 program was used for processing of data. Qualitative variables were analyzed using frequencies and proportions. The results obtained from the quantitative variables were expressed using the arithmetic mean and standard deviation. For the comparison of the results obtained in this investigation with the ones reported by the CLAP, a Compliance Test for Hypothesis Testing was used. The significance level established was values of Z less than or greater than 1.96 (p ≤ 0.05)[9]. Excel 2007 was used to create the tables.

Results

General characteristics of the study population

From the total study population, the mean age was 16.6 years (SD + 1.16). A56.1% (n=202; 95% CI 50.8-61.3) of the patients were single at the time of their first prenatal care appointment. The percentage of school dropout was 51.7% (n=186; 95% CI 46.4-56.9) and only 6.7% (n=24; 95% CI 4.4-9.9) had some kind of employment. A 7.5% (n=27, 95% CI 5.1-10.9) reported to have used some type of legal or illegal substance. The prevalence of smoking, as well as of alcohol and drug consumption for the total sample was 18.1% (n=65; 95% CI 14.3-22.5), 0.6% (n=2; 95% CI 0.1-2.2) and 2.8% (n=10; 95% CI 1.4-5.2), respectively.

A16.9% (n=61; 95% CI 13.3-21.3) suffered from some type of disease before pregnancy. Of these, 34.4% (n=21; 95% CI 27.7-47-7) reported bronchial asthma as the most common disease.

The mean age of first sexual intercourse was 15.1 years (SD + 1.29). The median of sexual partners was 2, with a range from 1 to 30. The prevalence of sexually transmitted diseases (STDs) diagnosed in the sample was 6.7% (n=24; 95% CI 4.4-9.9). The most common STD diagnosed was infection with human papillomavirus in 19 of these 24 patients (79.2%; 95% CI 57.8-92.9). Only 5.3% (n=19; 95% CI 3.3-8.3) reported history of sexual violence.

A 79.2% (n=285; 95% CI 74.6-83.2) reported their pregnancy as "unplanned." In contrast, only 28.1% (n=101; 95% CI 23.5-33.1) reported to have used some birth control method after the onset of sexual intercourse. Oral contraceptives were the most used by 52.5% (n=53; 95% CI 42.3-62.5) of patients.

Characteristics of prenatal care

Regarding their prenatal care, 89.7% (n=323; 95% CI 86.1-92.7) of patients were in their first pregnancy. Only 62.2% (n=224; 95% CI 57.0-67.2) had reliable dates of last menstrual period. However, 72.8% (n=262; 95% CI 67.9-77.3) had an ultrasound early in the first quarter that confirmed gestational age.

Table 1. Percentage of prenatal obstetric complications.
Study on the characteristics of prenatal care among adolescents, HCG, 2010.

	n	Giacomin/Leal (%)	CLAP (%)	p value
First pregnancy	323	89.7	75.7	< 0.001
Tobacco consumption	19	5.3	9.5	0.01
Normal prepregnancy BMI	225	62.6	66.8	0.90
Number of prenatal visits >5	340	94.4	41.2	< 0.001
Preeclampsia	8	2.2	4.7	0.01
Eclampsia	0	0.0	0.5	0.17
Gestational DM	0	0.0	1.1	0.04
Urinary infection	112	31.1	4.3	< 0.001
Premature rupture of membranes	32	8.9	6.6	0.70
Pre partum anaemia	44	12.2	6.8	< 0.001

Table 2. Percentage of complications related to childbirth.
Study on the characteristics prenatal care of adolescents, HCG, 2010.

	n	Giacomin-Leal (%)	CLAP (%)	p value
Cesarean Birth	66	18.3	14.1	0.02
Episiotomy	177	49.2	69.3	< 0.001
Postpartum Hemorrhage	26	7.3	5.4	0.10
Postpartum endometritis	6	1.7	9.0	< 0.001
Maternal death	0	0.0	5.4	< 0.001

Table 3. Percentage of complications related to the newborn.
Study on the characteristics prenatal care of adolescents, HCG, 2010.

	n	Giacomin-Leal (%)	CLAP (%)	p value
Preterm delivery	48	13.3	10.8	0.12
Low birth weight	27	7.5	10.2	0.09
Very low birth weight	9	2.5	1.5	0.11
Fetal death	3	0.8	15.7	< 0.001
Apgar less than 7 at 5 min	13	3.6	1.1	< 0.001

A 94.4% (n=340; 95% CI 91.4-96.5) reported more than 5 prenatal care appointments. Only 62.6% (n=221; 95% CI 57.3-67.7) had a normal pre-gestational Body Mass Index (BMI). The mean weight gain during pregnancy was 12.1 kg (SD + 4.7).

A 12.2% (n=44; 95% CI 9.1-16.2) of patients suffered from anemia. The mean value of pre-partum hemoglobin was 12.3 g/dl (SD + 0.97). The 31.1% (n=112; 95% CI 26.4-36.2) reported some type of urinary tract infection. A 2.2% (n=8; 95% CI 1.0-4.5) suffered from pre-eclampsia; there were no cases of eclampsia. Neither were there cases of gestational diabetes mellitus; the mean blood glucose value following a 50-gram glucose load was 95.1 mg/dl (SD + 15.6).

Only 16.5% (n=59; 95% CI 12.9-20.8) of the patients required hospitalization during their pregnancy. The most common diagnosis for hospitalization was threat of preterm delivery in 24 of these 59 patients (40.7%; 95% CI 28.1-54.3). The prevalence of preterm delivery on the sample was 13.3% (n=44, 95% CI 10.1-17.4). Out of the total patients, 3.3%

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(n=12; 95% CI 1.8-5.9) gave birth before 34 weeks and 10.0% (n=36; 95% CI 7.2-13.7) between gestation weeks 34 and 37. An 8.9% of them (n=32; 95% CI 6.2-12.4) had a premature membrane rupture.

The percentage of congenital defects detected during prenatal care was 5.3% (n=19; 95% CI 3.3-8.3). Of the total of defects detected, those related to the urinary system were the most common (n=4/19; 21.5%).

Characteristics ofthe delivery

With respect to the variables of delivery, the mean gestational age was 38.2 (SD ± 2.2) weeks. The mean weight of newborns was 3050 g (SD ± 550). The size and mean head circumference were 48.7 cm (SD ± 2.9) and 33.6 (SD ± 1.9), respectively. A 3.6% (n=13; 95% CI 2.0-6.3) of the newborns had Apgar scores lower than 7 at 5 minutes. The percentage of episiotomies and tears was 49.2 (n=177; 95% CI 43.9-54.5) and 43.6% (n=91; 95% CI 37.9-48.5), respectively. A 13.1% (n=47; 95% CI 9.8-17.1) of newborns required some kind of resuscitation and 16.9% (n=61; 95% CI 13.3-21.3) of the total required hospitalization. The median hospital stay for these newborns was 11 days (2-30 days). Perinatal mortality was 0.8% (n = 3; 95% CI 0.2-2.6).

Characteristics of the postpartum

Regarding the postpartum variables, 24.2% (n=87; 95% CI 19.9-29.0) had at least one complication. Of these, the most frequent complication was postpartum anemia in 33.3% (n=29, 95% CI 23.6-44.3) of cases, followed by episiotomy dehiscence in 20.7% (n=18; 95% CI 12.7-30.7) and mastitis in 17.2% (n=15, 95% CI 10.0-26.8) of the cases.

Tables 1, 2 and 3 show the comparison between adolescents in our study and what the CLAP published in their 2005 study.

Discussion

This research shows the results obtained from a study of the patients who attended the adolescents' consultation of the HCG, which was formally established in the year preceding the execution of this research. Because it is a hospital-based study and not a population study, the results are applicable only to patients treated in the HCG.

This study is not free from information bias, since it uses information from the medical records of the patients asa source of data.

Notwithstanding these methodological limitations, this material shows how maternal morbidity and mortality of adolescent patients treated in our hospital is lower to the one reported by CLAP.[13] Although some diseases, such as urinary infections and anemia, occurred on a significantly higher percentage in our population, this is perhaps due to a better detection system rather than to an increase of the pathology. In recent years, it has been compulsory to conduct a urinalysis on all patients in every prenatal care visit and to evaluate at least on two occasions hemoglobin levels in our patients. This could justify the results obtained.[10]

Likewise, the percentage of more-than-5 prenatal care appointments in our population surpasses those reported by the CLAP[13], suggesting also a better surveillance system for these diseases during pregnancy. The latter may be improving also due to early detection of modifiable risk factors or certain diseases, such as preeclampsia, which, recognized in advance, decrease the prevalence of obstetric complications in our teenagers.

With regard to the newborn, we did not find significant differences in the percentage of preterm births, underweight or very low birth weight products. While it was not detailed in the paper published by CLAP[13], approximately 97% of births patients treated in our clinic came at or near term (more than 34 weeks gestation), which could explain the low neonatal mortality in our adolescents. However, it should be noted the HCG also has a Neonatal Care Unit that allows an integral treatment of patients and allows the provision of specialized resources for their care.

However, even if taking into consideration the availability of resources offered by our hospital, we consider that most of the good results obtained in this study are due to the implementation of an exclusive outpatient clinic for the pregnant adolescent patient. The integrated (perinatologist, nurse midwife, psychologist and social worker) and systematic approach of patients allows, as we said above, the early identification of some factors or situations, that when recognized early, decrease the prevalence of obstetric complications.

Contribution of each author: each of the authors participated in the planning of the study, collection and processing of data, as well as in the analysis and interpretation of it.

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