Quality of life of cardiac patients during pregnancy and after birth

Qualidade de vida de cardiopatas durante a gestação e após o parto

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Abstract

Objective: Analyze the changes in the quality of life of cardiac patients during pregnancy and after birth and study the correlations between the sociodemographic and clinical characteristics and quality of life measures during the postpartum period.

Methods: This prospective study included 33 pregnant women selected through non-probabilistic sampling. The research instrument was the SF-36 questionnaire. To compare the mean domain scores of the SF-36, Student's t-test was used, as well as Spearman's coefficient for possible correlations.

Results: In comparison with the pregnancy, the assessed quality of life improved after birth, except in the domains general health status and vitality. The variable pregnancy planning indicated a positive correlation with the mental health domain and a negative correlation with emotional aspects in the postpartum period.

Conclusion: After birth, the quality of life improved. Not planning the pregnancy contributed to improve the mental health, but aggravated the emotional aspects in the postpartum period.

Resumo

Objetivo: Analisar as mudanças na qualidade de vida em pacientes cardiopatas durante a gestação e após o parto, e estudar as correlações das características sociodemográficas e clínicas com medidas de qualidade de vida no puerpério.

Métodos: Estudo prospectivo que incluiu 33 gestantes selecionadas por amostra não probabilística. O instrumento de pesquisa foi o questionário SF-36. Para a comparação das médias dos escores dos domínios do SF-36 foi utilizado o test *t* de *Student* e o coeficiente de *Spearman* para possíveis correlações.

Resultados: Comparada à gestação, houve melhora na avaliação de qualidade de vida após o parto, exceto nos domínios estado geral de saúde e vitalidade. A variável planejamento da gestação indicou correlação positiva com o domínio saúde mental e negativa com aspectos emocionais no puerpério.

Conclusão: Após o parto houve melhora na qualidade de vida. Não planejar a gestação contribuiu melhorou a saúde mental, mas agravou os aspectos emocionais no puerpério.

Introduction

Pregnancy is a singular moment in the life of a woman, with socioeconomic, mental, physiological and sexual repercussions. Nevertheless, the association of pregnancy with a cardiac disease enhances the obstetric and fetal risks in the pregnancy-postpartum cycle.[1]

The occurrence of cardiovascular diseases in pregnancy ranges between 0.2% and 4% in Western countries[2] and the complications are related to the occurrence of thromboembolic events, heart failure, arrhythmias, among others.[3] In Brazil, the incidence of cardiopathy during pregnancy surpasses the international statistics, corresponding to 4.2%.[4] This percentage is attributed to the high incidence of rheumatic disease affecting women of reproductive age and represents 80% of cardiac diseases in pregnancy in developing countries.[5]

Rheumatic disease, in turn, is considered the most important causal determinant of valve diseases, as the scar from the inflammatory process that affects the follow-up of the heart during episodes of rheumatic fever causes deformation of the heart valves.[6]

The cardiovascular changes associated with pregnancy and the postpartum period can contribute to the clinical worsening of these patients' condition and, often, to the initial diagnosis of a valve disease.[7] In this period, the circulating blood volume increases by about 30 to 50%. At the same time, there is a substantial reduction in the systemic vascular resistance and reduced blood pressure. These changes start in the first term and peak at 24 weeks of pregnancy, with an additional increase in the immediate postpartum.[1]

In clinical practice, however, it is assumed that the hemodynamic changes that happen during pregnancy, associated with the limitation of daily activities, can influence these women's health-related quality of life (HRQoL), although quality of life is a subjective concept and, as such, its assessment depends on each individual's perspective in different dimensions of life.

Despite the relevance of the theme, little attention has been paid to the HRQoL of pregnant women with cardiopathies. Most of the studies investigate quality of life during pregnancy in healthy or adolescent women or in relation to other pathological processes.[8-10] Concerning the cardiac disease, the cardiovascular repercussions and clinical outcomes of pregnancy have been focused on.[11,12]

In that perspective, the following objectives were defined: analyze the changes in the quality of life of cardiac patients during pregnancy and after birth, and study the correlations between the sociodemographic and clinical characteristics and quality of life measures in the postpartum period.

Methods

A descriptive, exploratory and prospective study was undertaken at a gynecology and midwifery outpatient clinic of a public hospital in the interior of the State of São Paulo. A non-probabilistic sample was constituted of patients who attended the gynecology and midwifery outpatient clinic of the institution between November 2011 and May 2014.

The following inclusion criteria were established: to be a pregnant women with cardiac disease as from the second term of pregnancy and taking part in prenatal care at the institution. This period was chosen because of the increase in the blood volume, which peaks at 24 weeks of pregnancy and reaches a level 40% higher than the pre-pregnancy volume.[1] The exclusion criteria were: unavailability to participate in the two study interviews and self-referred inability to communicate verbally.

Thus, 39 participants were selected, 33 of whom completed the study. Five pregnant women dropped out as they did not attend the institutional return in the postpartum period and as one patient spontaneously aborted.

The data were collected through individual interviews at a private room before the doctor's appointment, at two times: the first contact with the pregnant women (M1) took place during the pregnancy as from the second term; and the second contact (M2) happened 40 days after birth, during the outpatient return. Sociodemographic, clinical and obstetric data were collected during the interviews, held at a private room. When necessary, the patient history was consulted.

The quality of life was assessed with the help of the Medical Outcomes Survey Short Form (SF-36), in its version validated for Portuguese.[13] This tool consists of 36 items, 35 of which are grouped in eight domains: functional ability (10 items), physical aspects (four), pain (two), general health status (five), vitality (four), social aspects (two), emotional aspects (three), mental health (five) plus an additional comparative assessment question between the individuals' current health condition and that condition one year earlier. Each domain in this tool is scored between zero and 100, with higher scores indicating a better perceived health condition.

The quantitative variables were analyzed in terms of means and standard deviations, while the classification variables were presented in tables with absolute (n) and relative (%) frequencies. The SF-36 scores were expressed as medians and interquartile ranges. To compare the mean SF-36 scores, Student's t-test was used. Spearman's correlations were obtained between the SF-36 domains and the variables: age, instruction level, monthly family income, pregnancy planning and gestational age. The data were analyzed in the software Statistical Package for the Social Sciences (SPSS), version 19.0. p-values < 0.05 were considered statistically significant.

The study was reported in the Research Ethics Committee, *Universidade Estadual Paulista, Faculdade de Medicina de Botucatu* under number - 3911 2011.

Results

Thirty-tree pregnant women participated in the study, with a mean age of 27.4 years (interval between 14 and 43 years). In total, 18.1% were younger than 20 years, 45.5% between 21 and 30 years and 36.4% over 31 years of age. Practically half of the participants (51.5%) concluded secondary education and only two (6.1%) held a higher education degree.

As regards the marital union, the majority had a partner (27; 81.8%), that is, they were married and had a fixed partner. In addition, more than half of the interviewees (69.7%) were mothers. In this sample, 15 participants (65.2%) referred only one child, six (26%) two and the remainder three (8.7%) children.

Of all participants, 15 (45.4%) were not professionally active, because they were students (3; 9.0%), 10 (30.4%) were housewives and two (6.0%) were unemployed. Among the employed participants, 12 (36.4%) engaged in non-specialized manual professional activities and six (18.2%) were on leave due to health problems.

The mean family income was 1,502.00 (SD= ± 857.33), ranging between R$ 300.00 and the maximum R$ 4,000.00, demonstrating the great economic variability of this sample.

Concerning the clinical and obstetric variables (Table 1), 11 (33.3%) pregnant women had aborted before the current pregnancy and 23 (69.7%) had not planned the current pregnancy. In addition, 23 (69.7%) had also been pregnant earlier, most of whom (73.9%) more than once. The mean gestational age was 27 weeks (SD=± 2.69).

Another finding refers to the fact that most of the pregnant women (87.9%) had not participated in family planning groups and did not use a contraceptive method (84.8%). Concerning the etiology of the cardiopathies, 14 (42.4%) pregnant women showed valve diseases as the predominant baseline pathology, followed by rheumatic fever (30.3%). Arrhythmias (12.2%), mitral valve prolapse (6.0%), myocardiopathies (6.0%) and congenital cardiopathy (3.0%) were less frequent.

The results of the HRQoL measures obtained through the application of the SF-36 are displayed in table 2. At M1, corresponding to the pregnancy period, the median domain score ranged between 33 and 72; and at M2 (postpartum) between 50 and 90. After birth, a statistically significant improvement (p<0.05) was found in all domains, ex-

Table 1. Clinical and obstetric variables of pregnant cardiac patients

Variable	n(%)
Previous pregnancy	
Yes	23(69.7)
No	10(30.3)
Number of previous pregnancy	
=1	6(26.1)
≥ 2	17(73.9)
Previous spontaneous abortion	
Yes	11(33.3)
No	22(66.6)
Participation in family planning groups	
Yes	4(12.1)
No	29(87.9)
Pregnancy planning	
Yes	10(30.3)
No	23(69.7)
Use of contraceptive methods	
Yes	5(15.2)
No	28(84.8)
Gestational age (weeks)	
Mean	27.0 (±2.69)
Etiology of cardiopathies	
Arrhythmias	4(12.2)
Valve diseases	14(42.4)
Rheumatic fever	10(30.3)
Myocardiopathy	2(6.0)
Mitral Valve Prolapse	2(6.0)
Fallot Tetralogy	1(3.0)

cept for the general health status (p=0.4010) and vitality (p=0.1060). A lesser improvement was observed in social aspects, general health status and mental health, respectively. Concerning the pain domain, despite the statistically significant difference (p=0.037), little variation was found after birth, without a change in the median.

In table 3, when the SF-36 domains are correlated with the variable pregnancy planning, using Spearman's Correlation Coefficient, a positive and statisti-

cally significant correlation was found with the mental health domain (p=0.0277), but a negative correlation with emotional aspects (p=0.0202) after birth. The remaining correlations with the variables age, instruction level, income and gestational age were not presented because the results were not statistically significant.

Table 3. Estimated linear correlations between SF-36 domains and the variable pregnancy planning after birth

Domains	Correlation	p-value **
Pregnancy planning*		
Functional ability	0,01195	0,9500
Physical aspects	-0,19797	0,2945
Pain	0,04518	0,8126
General health status	-0,05750	0,7670
Vitality	0,11278	0,5529
Social aspects	0,22485	0,2323
Emotional aspects	-0,42182	0,0202
Mental health	0,40192	0,0277

*Ref.: not having planned the pregnancy; **Spearman Correlation Coefficient

Discussion

The limits of the study results refer to the sample size, despite the broad data collection period. This fact can be due to the regional characteristics of care at the research institution and the small number of pregnant women with cardiac diseases, which were difficulties faced. In addition, the interviews at two times only may not be sufficient to picture the magnitude of possible changes during pregnancy and postpartum.

Quality of life assessment has been an indicator used to guide care practices and to support the definition of public policy strategies in the context of health promotion and disease prevention. Never-

Table 2. Health-related quality of life measures of pregnant women with cardiopathies during pregnancies (M1) and after birth (M2)

Domains	M 1		M 2		p-value*
	Medians	Percentile 25-75	Medians	Percentile 25-75	
Functional ability	60.0	40.0-85.0	90.0	70.0-95.0	0.0131
Physical aspects	50.0	0.00-75.0	87.5	25.0-100	0.0244
Pain	50.0	40.0-50.0	50.0	50.0-60.0	0.0378
General health status	65.0	36.0-66.0	70.0	60.0-75.0	0.4010
Vitality	40.0	30.0-75.0	60.0	50.0-70.0	0.1060
Social aspects	37.5	37.5-50.0	50.0	37.5-50.0	0.0158
Emotional aspects	33.3	0.00-100	66.6	33.3-100	0.0479
Mental health	72.0	40.0-76.0	76.0	56.0-84.0	0.0521
Total score	40.0	36.3-62.2	65.0	54.7-71.8	0.0008

*Student's t-test

theless, there is a lack of studies that assess quality of life in high-risk pregnant women, despite the relevance of the theme, mainly in developing countries where rheumatic fever has not been eradicated yet.

In this study, adult women, with a partner, between 21 and 30 years of age who had finished secondary education were predominant. These data are in line with a study involving healthy pregnant women, in which most participants possessed more than 11 years of instruction. The pregnant women's education level is relevant as, besides reflecting the mother's socioeconomic condition, this is associated with neonatal mortality, mainly in developing countries.[15]

Another relevant piece of information in this research refers to the fact that most participants had a partner and did not use contraceptive methods. Contraception is indicated in these patients to reduce the maternal-child morbidity and mortality in the pregnancy-postpartum cycle.[16]

The use of low-risk and highly effective hormonal contraceptives is recommended in the literature for these participants. Nevertheless, for patients with valve diseases, there are restrictions to the use of the intra-uterine device, due to the risk of infection and bleeding. In high-risk cardiac patients, contraception is indicated through sterilization.[17] In the context of this research, the possibility should be taken into account that these women became pregnant because they did not adapt to the indicated method or because they did not have access to others. In addition, subjective, cultural and psychosocial aspects that permeate high-risk pregnancies should also be considered.

Regarding the etiology of cardiac diseases, valve diseases were the main complication, probably associated with the occurrence of rheumatic fever in childhood. This result is in line with a Brazilian study developed at a specialized cardiology hospital, involving 650 pregnant cardiac patients. In this study, 50% of the participants presented rheumatic valve disease.[18]

In this research, the goal was to investigate the HRQoL of pregnant cardiac patients due to their clinical and obstetric complexity, which can influence the perceived HRQoL. During pregnancy,

among the eight SF-36 domains, the worst assessments were related to emotional aspects (33.3), social aspects (37.5) and vitality (40). Scores in the other domains ranged between 50 (pain) and 72 (mental health). Diverging results were obtained in a study that investigated HRQoL in pregnant cardiac patients attended at a public high-complexity cardiology hospital. In that cross-sectional research, the domains with the worst assessment were health/functioning and socioeconomic; the best assessment was related to the psychological/spiritual and family domains.[19] These data evidence that economic, sociocultural, psychological and health aspects influence the perception of the quality of life dimensions at such a peculiar and special moment in a woman's life.

When comparing the HRQoL measures after birth, improvements were observed in all SF-36 domains, except general health status and vitality. Aspects of the vitality domain of the SF-36 are related to strength, energy, fatigue and exhaustion. In the general health status domain, the questions are intended to assess the patient's global health perception. In that sense, the hypothesis can be raised that these study results were influenced by the demands motherhood poses on women in this period, possibly also associated with the cardiac disease.

Nevertheless, these results diverge from a prospective study involving 245 women in the third term of pregnancy, in which the pregnancy was associated with a worse general perceived health in women with type I and gestational diabetes. After birth, significant worsening of the physical and emotional aspects was only observed in women with gestational diabetes.[20]

To respond to the second study objective, correlations were made between the SF-36 and the variables age, instruction level, income and gestational age. Nevertheless, only the variable pregnancy planning showed a positive and statistically significant correlation with the mental health domain and a negative correlation with emotional aspects in the postpartum. High-risk pregnancy entails difficulties for pregnant women to emotionally adapt to the new role required, which may entail repercussions after birth, when other demands are incor-

porated into the responsibility of being a mother.[21] Therefore, administering the pregnancy under these circumstances demands the construction of integral, humanized care, based on welcoming and continuing during the postpartum.

In this context, the importance of primary health care services' interventions stands out, focused on health promotion, so that these women get the support needed to take care of themselves and the fetus. In addition, the establishment of active listening, allied with communication practices, can also contribute to unveil aspects that are not much understood yet, and which make a female cardiac patient get pregnant without planning.

The importance of planning the most appropriate moment to get pregnant in cardiac patients rests on the premise that thromboembolism is considered the main cause of death in these patients.[22,23] Rheumatic valve disease favors risk conditions for the occurrence of this event during pregnancy, with natural values and prosthetic valves. In this context, anticoagulation, often inevitable, can entail presumed side effects for the mother and the fetus.[24]

Thus, the importance of family planning is highlighted as a part of women's health care actions, based on the principle of care integrality. This program serves not only to provide guidance on conception, contraception and sexuality, but also to prevent sexually transmitted diseases. And it differs from birth control, which only serves to establish measures to avoid pregnancy, ignoring women's autonomy with regard to their reproductive rights.

Although family planning is considered a duty of the State in the context of the Unified Health System (SUS), these actions are developed in some states or regions, mainly by the Family Health Strategy (FHS) and public institutions.[25]

Nevertheless, although present at these health services, this activity, which should be a priority, ends up in the background, due to the health professionals' emphasis on the pregnancy-postpartum cycle.[26] This fact probably justifies the study participants' limited adherence to family planning services.

Conclusion

These study results indicate that the perceived health-related quality of life in pregnant women with cardiopathies improved after birth in most domains. The hardly expressive variation in the pain domain in the postpartum period did not change the median, despite being statistically significant. In the correlation with the sociodemographic and clinical variables, not planning the pregnancy contributed to improve the participants' mental health domain, but aggravated the emotional aspects after birth.

Collaborations

Meneguin S contributed to the conception of the study, analysis, relevant critical review of intellectual content and approval of final version for publication. Xavier CL collaborated with the conception and analysis of the data. Santana DG cooperated with the analysis and interpretation of the data.

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