

Palpitation in pregnancy: experience in one major hospital in Kuwait

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Abstract

Background: Increased heart rate is a normal physiological adaptation occurring during pregnancy. Some women have severe tachycardia requiring medical attention. Aim of this study is to determine the number of women with benign symptomatic palpitations who receive treatment.

Methods: We performed a retrospective chart review of all women who were referred to our obstetric-medicine clinic for evaluation of palpitation from January 2009 to December 2009 in one major maternity hospital in Kuwait.

Results: A total number of 27 women were identified. Of these, only 7 (25.9%) were given treatment for palpitation. Two were started on digoxin, 3 given propranolol, 1 woman on both propranolol and digoxin and 1 was started on verapamil. Eighteen women had normal deliveries with healthy babies.

Conclusion: Palpitation is a common symptom during pregnancy. However, only a small number of patients receive treatment despite safety of drugs that are used to control tachycardia.

Keywords: Palpitation, Arrhythmia, Pregnancy.

Introduction

Pregnancy is characterized by dramatic and reversible changes in cardiovascular hemodynamic to meet the increased metabolic demands of the mother and the fetus. Early changes are due, in part, to the metabolic demands brought on by the fetus, placenta and, to the increasing levels of pregnancy hormones, particularly those of progesterone and estrogen. Later changes, starting in mid-pregnancy, are anatomical

in nature and are caused by mechanical pressure from the expanding uterus (1-5). Heart rate increases by 10% to 20%, and stroke volume is significantly increased as early as the eighth week of pregnancy. A 30% to 60% increase in cardiac output begins to appear early in the first trimester (6). Blood volume increases by 30% to 40%, so that it is 1200 to 1600 mL greater than it is in the non-pregnant state (7).

This increase begins as early as 6 weeks of gestation and plateaus by the third tri-

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mester. This dramatic change seems to be driven by increase in preload and stroke volume early in pregnancy and is maintained by an increase in heart rate late in pregnancy. Particularly in the last trimester, body position can significantly affect these variables. When the patient is in the supine position, the gravid uterus compresses the inferior vena cava, decreasing systemic venous return and preload and causing an acute reduction in cardiac output of up to 25%. Use of the left lateral decubitus position can prevent this and allows reliable and reproducible hemodynamic measurements (1,5). The compliance of the arterial and venous systems increases in parallel with the expanding blood volume, suggesting that, acting as capacitor, this compliance is one of the body's adaptive mechanisms to accommodate the increase in volume (7,8).

Increased heart rate is one of the physiological adaptations, which can be exaggerated, in some pregnant women. These palpitations can be severe enough to affect the daily activity of pregnant women. Despite the availability of treatment for symptomatic palpitation, many pregnant women are denied treatment. Up to this date, data evaluating treatment of symptomatic benign palpitation without an underlying arrhythmia are sparse.

Aim of this study is to determine the number of women with benign symptomatic palpitations who receive treatment.

Methods

We did a retrospective chart review of all pregnant patients who were referred to the obstetric-medicine clinic for evaluation of palpitation from January 2009 to December 2009 in one major maternity hospital in Kuwait. The patients were either referred from the obstetric clinics or from their family physicians at the polyclinics. We defined "benign palpitation" as sinus tachycardia without any evidence of structural heart disease or systemic causes. Data collected included: age of patient, gestational age (GA) at referral and also at delivery,

symptoms at presentation, past medical history, heart rate (HR) recorded in initial visit, electrocardiogram (ECG), thyroid stimulating hormone (TSH), treatment given and Apgar score. Treatment options consisted of propranolol, digoxin, verapamil or combination of them. Digoxin was used in those patients who had systolic blood pressure <100 mmHg at presentation. Response to treatment defined as subjective relief of palpitation with documented HR in antenatal visits was obtained from the charts of those patients who were started on treatment.

Results

There were a total of 822 women referred to our obstetric-medicine clinic for various reasons from January 2009 to December 2009. Of the 822 patients, 27 women were referred for evaluation of palpitation. The average age was 32 yr (range 22- 45yr). Two patients were referred at first trimester (GA 10 and 11), 9 were referred at late 3rd trimester (GA 35-38) and the other 18 patients were in their 2nd and early 3rd trimester at referral. The major complaints of all 27 women were palpitation, associated with chest tightness, nausea and presyncope. Twenty two women were previously healthy, 2 had preexisting hypertension, 1 with bronchial asthma, 1 had hypothyroidism and 1 had preexisting mitral valve prolapse. Except for 3 patients, all others had ECG done and available in the charts, which was normal apart from sinus tachycardia with HR ranging from 76 beats/min to 132 beats/min. All women had

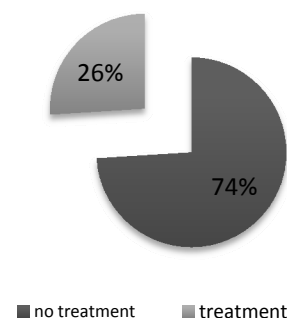


Fig 1. Number of patients received treatment

Table 1. Patients and treatment given.

Patient	Treatment	GA at 1 st visit	BP at 1 st visit	HR at 1 st visit	HR at f/u
1	Propranolol	15+5	120/80	132	88
2	Digoxin	33	100/70	108	104
3	Propranolol	35	110/80	115	92
4	Propranolol	33	110/70	106	84
5	Digoxin	18+4	90/60	112	84
6	Propranolol +digoxin	28+5	120/70	116	100
7	Verapamil	32	110/70	104	80

normal TSH values. Echocardiogram, which was done for all women, showed normal heart structures except for 2 patients who had mitral valve prolapse (MVP). Only seven women (25.9%) of the 27 were given treatment (Fig.1). Three women (11.1%) were started on propranolol, two women (7.4%) received digoxin, one woman (3.7%) received verapamil and one (3.7%) received both propranolol and digoxin. One woman with MVP was not given any treatment while the other one was given digoxin because of borderline low blood pressure. All seven women reported symptomatic relief with treatment given during antenatal follow up (table-1). Nine (33.3%) of the 27 women delivered in private hospitals and therefore their postpartum data were not available in the charts. Eighteen (66.6%) women had normal deliveries with healthy babies and Apgar score at 1 minute was 6-9 and Apgar score at 5 minute was 8-9. The mother of the one baby with the lowest Apgar score of 6 at 1 minute and 8 at 5 minute was not on any treatment.

Discussion

Data evaluating the use of medications to control symptomatic benign palpitation in pregnant women are limited. Increased heart rate is a normal physiological adaptation occurring in pregnancy. Many pregnant women would be able to tolerate it. However, some of them would have severe tachycardia requiring medical attention and intervention.

In our study, we found that only about 25% of pregnant women with symptomatic tachycardia or palpitation receive treat-

ment, despite the available evidence of the safety of drugs being used (9,10). Drugs commonly used are rate control medications, which include Beta-blockers, calcium channel blockers and other antiarrhythmic agents like digoxin. Propranolol, one of the commonest Beta-blockers, which is used during pregnancy for maternal and fetal indications, has been shown not to be teratogenic. Verapamil, which is used as an antiarrhythmic agent, has also been shown to have a very low risk or nonexistent risk when used in any portion of pregnancy. Digoxin has no teratogenic effect and pregnancy recommendations show compatibility (11).

In our study, all seven women who were given treatment reported resolution of their symptoms, ability to perform their activities of daily living and all delivered healthy babies. The one baby with the lowest Apgar score was not exposed to any medication.

Conclusion

Palpitation in pregnancy is a common complaint in pregnancy. However, only a small number of patients receive treatment despite the safety of drugs that are used to control symptomatic tachycardia. The number of patients in our study is small and therefore, further larger studies are needed to evaluate the management of symptomatic benign palpitation in pregnancy.

References

1. Lee RV, Rosene- Montella K, Anne Barbour L (eds). Medical care of the pregnant patient. 2008, 774:311-318.
2. Kerr Mg. The Mechanical Effects of The Grav- id Uterus In Late Pregnancy. J Obstet Gynaecol Br

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- Commonw. 1965; 72:513.
3. Capeless EL, Clapp JF. Cardiovascular changes in early phase of pregnancy. *Am J Obstet Gynecol* 1989; 161: 1449.
 4. Almeida FA, Pavan MV, Rodrigues Cl. The haemodynamic, renal excretory and hormonal changes induced by resting in the left lateral position in normal pregnant women during late gestation. *BJOG* 2009; 116(13):1749.
 5. Christopher F Ciliberto, Gertie F Marx, Darryl Johnston. Physiological changes Associated with pregnancy. *Update in Anaesthesia*, 1998. (9):1-6.
 6. Catherine Nelson-Piercy. *Hand book of obstetric medicine*. 2006; 385:286.
 7. Bernstein IM, Ziegler W, Badger GJ. Plasma volume expansion in early pregnancy. *Obster Gynecol* 2001; 97:669.
 8. Van Oppen AC, Stigter RH, Bruinse HW. Cardiac output in normal pregnancy: a critical review. *Obstet Gynecol* 1996; 87(2):310.
 9. Adamson DL, Nelson- Piercy C. Managing Palpitations and arrhythmias during pregnancy. *Heart*. 2007 Dec, 93 (12): 1630-1636.
 10. Rotmensch HH, Elkayam U, Frish man W. Antiarrhythmic drug therapy during pregnancy. 1983 Apr; 98 (4): 487-97.
 11. Gerald G. Briggs, Roger K. Freeman, Sumner JY. *Drugs in Pregnancy and Lactation*. Lippincott Williams and Wilkins; 9th Revised edition: NY; 2011; 1224:1703.