Pregnancy in Heart Disease

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Pregnancy is a normal physiological process producing an increased burden on the heart in the nature of an increase in its functional load. Pregnancy is well borne by the normal heart. The heart only fails in pregnancy when the heart itself is diseased or is not adequate to meet the functional load placed upon it. There is no pregnancy type of heart disease. When a cardiac patient becomes pregnant, her degree of compensation determine whether or not she will carry her pregnancy through to term.

The incidence of heart disease in pregnancy varies in various clinics, occurring in 1 to 4 per cent of the total number of patients seen. Under ordinary circumstances there is an increased blood volume in pregnancy, which, in turn, will increase the total metabolism of the body with the result that we will have a corresponding increase in oxygen consumption. This increase in consumption of oxygen varies a great deal in each individual, but probably is about 20 per cent above normal. Whether there is a corresponding increase in the basal metabolic rate is still debatable. Some observers feel that the essential basal metabolic rate does not increase in pregnancy while others feel that there may be an increase of 20 to 30 per cent. From the fifth to ninth month there is a gradual increase in cardiac output until it is estimated to be 50 per cent above normal, and during the last two or three weeks, there is a moderate fall in the output. The increased output is associated with a slight increase in the pulse rate. The increased work by the heart will be proportional to the cardiac output as well as to the arterial blood pressure. The blood pressure is not particularly elevated during pregnancy. There is an increase in the return of venous blood to the heart and as a result the cardiac output reflects this return. There is a slight increase in the acceleration of the circulation during the latter part of pregnancy. The blood volume increases during pregnancy and probably gets to be about 45 per cent above normal, and then diminishes to about 30 per cent above normal in the month before delivery. The plasma volume will also increase proportionately and there is an increase in cell volume. These changes that occur in the circulatory system are akin to those that occur with an arteriovenous fistula. In the placenta itself there is almost a direct communication between the arteries and the veins with a subsequent blood shunt from arterial to the venous side resulting in acceleration of blood flow with an increased venous return and a subsequent increase in cardiac output.

It is apparent that the circulating blood volume, increased as it is, and

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the increase in the venous return represent mechanisms which ordinarily
are efficient in maintaining the normal circulatory balance but can be
disadvantageous under certain circumstances. The diseased heart with its
diminished functional reserve may be unable to maintain adequate cardiac
output despite the fact that the blood volume has increased. The increase
in blood volume will not be propelled normally as a result of the low
reserve cardiac function. The result will be congestion of the lungs and
viscera and signs and symptoms of congestive heart failure. Since these
changes become greater after the fifth month and reach their height in
the ninth lunar month, this intervening time is the time of challenge and
danger to the pregnant patient with heart disease. If the patient carries
through this period, the normal reduction of these phenomena brings the
patient to labor in a fair degree of compensation. Heart failure occurring
during labor or immediately following labor is rare. On the other hand,
if heart failure is present when labor starts, there is some risk that the
labor itself may manifest an increase in the myocardial insufficiency.

Symptoms Suggesting Heart Failure During Pregnancy

One must be aware of the fact that dyspnea is common in the last half
of pregnancy and is due to the fact that the respiratory muscles increase
their activity in order to maintain adequate circulation. It is the type of
dyspnea that is seen in rapid weight gain. We must also be aware of the
fact that the sighing syndrome is common in pregnancy. Palpitation and
tachycardia are also common complaints in pregnancy. These symptoms
are noted particularly after exertion, but, they seldom become an item of
importance. The presence of edema is very common in the lower extremi-
ties. This association in pregnancy of edema and dyspnea may lead one
to believe the patient is suffering from congestive heart failure. The cause
of the edema in the lower extremities is probably the result of increased
local venous pressure in the extremities, which, in turn, is augmented by
the increased circulating blood volume. The edema is not the result of
heart failure and can be so determined by the absence of venous en-
gagement in the veins of the neck and also by the normal venous pressure.
Cardiac enlargement may seem to be present if the apex pulse is displaced
to the left and upward, but this is usually the result of an elevated dia-
phragm. An x-ray examination may also suggest the heart to be enlarged.
One should recognize that in pregnancy, there is a tendency to over-
estimate the size of the heart. A systolic murmur may be heard particularly
at the base of the heart, but a diastolic murmur is rarely heard unless
disease is present. The presence of a high pulse pressure is not significant
in the absence of an aortic valve defect. The electrocardiogram may
normally reveal the effect of displacement of the heart.

The diagnosis of heart disease in pregnancy lies first in knowing that
the patient had some type of cardiac lesion before she became pregnant.
The symptoms of heart failure must be absolute and confirmed by physical
examination and such laboratory procedures as are indicated. The types
of heart disease seen in pregnancy will be similar to those found in the
general population. For example, there may be a congenital heart defect, a rheumatic heart defect, a luetic heart defect, hypertensive cardi-vascular disease, or coronary artery disease. Any of the other unusual types of heart disease may occur.

The prognosis is dependent on the functional classification of the patient's heart. Class I patient have no trouble; Class II have practically no trouble; Class II have some trouble; and of course, Class IV will have a great deal of difficulty.

The treatment of the patient who is pregnant and has heart disease is predicated upon the thesis that she should be treated for her heart disease as though she were not pregnant, and for her pregnancy as though heart disease did not exist. Such diagnostic procedures and therapy as the heart indicates should be given; and such obstetrical therapy as indicated should be rendered as though the patient were not a cardiac. Under no circumstances is it necessary to perform abortions or sterilizations in these patients, and above all, it is best to remember that there are no heart indications for any operative obstetrical procedures. The patient's treatment from the standpoint of obstetrics should be for those complications that arise in and around the obstetrical problem itself and not because of any problem that may arise by virtue of the heart disease.

To treat the pregnant cardiac patient bring her to term in the best state of compensation and permit her to deliver normally. The cardiac status should be treated as though the patient was not pregnant, and the obstetrical problem treated as though the patient did not have heart trouble. The watch-word throughout the period of pregnancy should be conservatism.

SUMMARY

There is little problem in the treatment of the patient who is pregnant and who suffers from heart disease. The physician should treat the heart disease as though the patient were not pregnant, and he should treat the pregnancy as though the patient did not have heart disease. In either condition the indications for treatment should be directed only to either the pregnancy or the heart disease. There is no heart disease which requires obstetrical interference. There is never an indication to interrupt a pregnancy or sterilize the patient because of heart disease.

RESUMEN

Ofrécese poco problema en el tratamiento de una paciente preñada, quien sufre de una enfermedad del corazón. Debe tratar el médico la enfermedad del corazón como si la paciente no estuviera preñada, y debe tratar la preñez como si la paciente no tuviera una enfermedad del corazón. En uno u otro caso las indicaciones para el tratamiento no deben dirigirse sino a la preñez o a la enfermedad del corazón. No hay enfermedad del corazón alguna que requiera intervención obstétrica. No hay nunca indicación ni a interrumpir una preñez ni a esterilizar a una paciente a causa de la enfermedad del corazón.
RESUME

Le traitement de la femme qui est enceinte et qui souffre en même temps d'une maladie de coeur ne pose pas de grands problèmes. Le médecin devrait traiter la maladie de coeur comme si la malade n'était pas enceinte et il devrait traiter la grossesse comme si la femme n'avait pas une maladie de coeur. De toute façon les indications pour le traitement devraient porter soit sur la grossesse soit sur la maladie de coeur. Il n'y a pas de maladie de coeur qui exige une intervention de gynécologie. Il n'y aurait aucune raison d'arrêter le cours de la grossesse ou de stériliser la malade à cause d'une maladie de coeur.