



MITRAL REGURGITATION

Background

The leading causes of mitral regurgitation in women of childbearing age are mitral valve prolapse/myxomatous mitral valve disease, rheumatic heart disease, connective tissue diseases and congenital cardiac lesions. Mitral valve prolapse can also occur in women with Marfan syndrome. (see Marfan Syndrome)

Most young women with mitral regurgitation are asymptomatic. Women with severe mitral regurgitation may develop atrial tachyarrhythmias, progressive left ventricular dilatation and dysfunction or heart failure.

Generally mitral valve surgery (repair where possible) is recommended prior to the development of significant left ventricular dilatation or dysfunction. When indicated, surgery should be performed before pregnancy.

Effects of Pregnancy-Related Hemodynamic Changes

Pregnancy is associated with hemodynamic changes including an increase in cardiac output and a decrease in systemic vascular resistance. (see Cardiovascular Changes During Pregnancy) As a consequence of the reduction in afterload, mitral regurgitation may decrease in severity. Pregnancy is generally well tolerated.

Maternal Complications

Most women, including those with severe mitral regurgitation, tolerate pregnancy well. However, women with severe mitral regurgitation can develop complications including heart failure and atrial arrhythmias.

(1) Other cardiac characteristics can also have an impact on outcomes. (see General Considerations). Complications, when they occur, can usually be managed medically.

Fetal Complications

The risk of premature delivery and intrauterine growth restriction may be increased in women with severe or symptomatic mitral regurgitation.

Management Strategies

Preconception Counseling/Contraceptive Methods

Most patients with mitral regurgitation can have a successful pregnancy. In the absence of poor functional status, ventricular dysfunction or atrial arrhythmias, heart related complications are rare.

Ideally, a comprehensive cardiovascular examination should be undertaken before embarking on pregnancy. This includes a careful history and physical examination, an electrocardiogram and a transthoracic echocardiogram. There may be some symptomatic women with severe mitral regurgitation who should undergo valve surgery prior to pregnancy. In asymptomatic women, the decision to proceed with surgery prior to pregnancy needs to be balanced against the risk of receiving a prosthetic valve with its attendant risks in pregnancy.

In general, most forms of contraception are safe in women with mitral regurgitation. Contraceptives containing estrogen should be used with caution in women with atrial arrhythmias because of the associated thrombotic risk. (see Birth Control)

When appropriate, transmission of congenital heart disease to offspring should be discussed. For women with Marfan syndrome, the risk of transmission of congenital heart disease to offspring is 50%.

Medication use should be reviewed if a woman is contemplating pregnancy or is pregnant. The MOTHERISK website (<http://www.motherisk.org>) is an excellent resource.

Ante-partum Care

Coordinated care between a heart disease specialist and an obstetrician should be implemented. The location and frequency of follow-up visits and echocardiograms should be dictated by the women's cardiac history, her functional status, the severity of her mitral regurgitation and her left ventricular systolic function.

In women with low risk features, depending on their preferences, antenatal care and delivery can be performed at non-specialized centers.

In women with moderate or greater mitral regurgitation, particularly if systolic ventricular dysfunction is present, consideration should be given to provision of antenatal care by a dedicated multidisciplinary team of experienced cardiologists, obstetricians and anesthetists at a high-risk pregnancy center. Close cardiovascular surveillance is essential throughout pregnancy and the peripartum period.

Treatment for symptomatic heart failure may be necessary in some women. Medical therapy may include diuretics and vasodilator therapy (hydralazine). Angiotensin converting enzyme inhibitors and angiotensin receptor blockers are not safe during pregnancy.

Supraventricular arrhythmia can be treated medically or with DC cardioversion when women are unstable or unresponsive to medical therapy. (see Arrhythmias)

When appropriate, women should be offered fetal echocardiography at approximately 20 weeks gestation.

Labour and Delivery

For women with significant mitral regurgitation and/or left ventricular systolic dysfunction, labor and delivery should be planned carefully with a multidisciplinary team well in advance. It is important to communicate the delivery plan to the woman and to other physicians involved in her care. The best delivery plan is not useful if information is not readily available when needed.

Generally, vaginal delivery is recommended. Good pain management for labour and delivery is important in order to minimize maternal cardiac stress. To decrease maternal expulsive efforts during the second stage of labour, forceps or vacuum delivery is sometimes utilized. To decrease potential harmful complications from difficult mid cavity-assisted delivery, uterine contractions are often utilized to facilitate the initial descent of the presenting part.

The need for maternal monitoring is dictated by the severity of mitral regurgitation, the clinical status of the women and the systolic function of the left ventricle. Women with significant left ventricular systolic dysfunction may require invasive blood pressure monitoring.

In general, endocarditis prophylaxis at the time of labour and delivery is not recommended in women with mitral regurgitation. However, some experts continue to administer antibiotics because they feel that the risks of adverse reactions to antibiotics are small and the risk of developing endocarditis has major health consequences.

Post-partum Care

The hemodynamic changes of pregnancy may take up to six months to normalize. Women should be seen early after pregnancy (usually within 6-8 weeks). The frequency of additional follow up visits should be dictated by the clinical status of the women.

References

1. Drenthen W, Boersma E, Balci A, Moons P, Roos-Hesselink JW, Mulder BJ, Vliegen HW, van Dijk AP, Voors AA, Yap SC, van Veldhuisen DJ, Pieper PG; On behalf of the ZAHARA investigators. Predictors of pregnancy complications in women with congenital heart disease. Eur Heart J. 2010 Jun 28. [Epub ahead of print]