УДК 61:615.1(062)(476-25)
ББК 52я73
А 43
ISBN 978-985-21-1258-1

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PREGNANCY IN WOMEN WITH CONGENITAL HEART DISEASE

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Due to medical advancement the number of women with congenital heart disease (CHDs) reaching childbearing age is increasing, and many of them desire pregnancy. During pregnancy the cardiovascular system (CVS) has to adapt to increased hemodynamic needs. Heart rate and cardiac output increases, the circulating albumin level decreases and arterial vasculature undergoes remodelling to accommodate for the increased blood volume. Despite being treated for previous CHDs, those women still may have residual effects in the CVS that may exacerbate these aforementioned changes during pregnancy.

Two main groups of specific lesions can be present in CHDs – repaired simple defects and palliated complex defects. Simple defects include atrial septal defects, ventricular septal defects, patent ductus arteriosus, and asymptomatic left-to-right shunts. If not accompanied with pulmonary hypertension, the first group can have a normal pregnancy.

Complex defects can be divided into 5 groups. Ebstein anomaly consists of varying degrees of tricuspid valve regurgitation. In tetralogy of Fallot, the most common residual lesion is pulmonary regurgitation, which is generally well tolerated. However, severe pulmonary regurgitation with right ventricular dysfunction poses high maternal risks. Coarctation of aorta is narrowing of the thoracic aorta. Transposition of the great arteries is a condition associated with discordance between the aorta and the pulmonary trunk, consequently creating two parallel incompatible circuits. Fontan circulation is an ultimate procedure for a variety of complex congenital heart lesions; the main one being hypoplastic left heart syndrome. Pregnant women with treated CHDS fall into 2 main groups – cyanotic and acyanotic.

Commonly, maternal risks include cyanosis, thromboembolic complications, as well as miscarriages. Supraventricular arrythmias, heart failure and hypertensive disorders also may occur. Fetal risks are mostly seen as fetal growth restriction or fetal loss.

Management requires a multi-disciplinary team throughout the course of pregnancy. Women with cyanotic forms should be provided with extra attention as they are at a higher risk. If heart failure occurs, pregnant women must be admitted to the tertiary care centre. Inotropes may be needed to improve heart failure and careful administration of diuretics can be used to improve pulmonary congestion. Vasodilators may be used for afterload reduction. Patients meeting criteria for valve replacement should undergo the procedure before conception.

Medications for pregnant women with chronic heart failure should be optimized before delivery. Doctors encourage that all pregnant women with CHD should be offered foetal echocardiography between 18 to 21 weeks of gestation. However, the WHO Classification of Maternal Cardiovascular Risk claims that pregnancy is contraindicated in women at the risk level of stage IV and in the event of pregnancy, it must be terminated. Pregnancy is also contraindicated in Eisenmenger reaction, major or significant aortic dilatation in Marfan syndrome, severe aortic stenosis, deep cyanosis and heart failure.

In conclusion, pregnancy in women with CHDS is possible and the chances to eliminate complications are reasonably high. Therefore, the key to a successful prognosis is careful and precise management that focuses on, both, the pregnant woman and fetus during varying periods of the pregnancy.