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Letters to the Editor

Cardiocentro Ernesto Che Guevara Santa Clara Cuba

Importance of fetal echocardiography in the diagnosis of congenital heart defects

Importancia de la ecocardiografía fetal en el diagnóstico de malformaciones cardíacas congénitas

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To the Editor:

With the advent of new technologies, techniques that are innocuous for the diagnosis of different diseases are becoming more and more important. The detection of congenital heart defects during the prenatal period is of crucial importance for the life quality of both mother and child.

Fetal echocardiography is a non-invasive study performed through abdominal ultrasound, besides the equipment of last technological generation allows the evaluation of the fetal heart from the first trimester of gestation[1] on. This method represents the main tool for the diagnosis and detailed evaluation of the fetal cardiovascular system, and it is useful –for this purpose– from the end of the first trimester until the end of pregnancy[2].

For more than two decades, the use of fetal echocardiography has been a controversial issue, and its ideal technique, exact definition and scope have often been questioned. Currently, thanks to technological advances, the aim is to include not only a detailed structural evaluation, but also a functional one[2].

Fetal echocardiography in experienced hands can detect more than 90% of severe congenital heart diseases. Thus, in routine obstetric ultrasound, the incorporation of the 4-chamber view theoretically allows to detect more than 50% of severe cardiac defects when performed at mid-gestation, and if to this the outflow tracts and three vessels and trachea views are added, this detection process increases its sensitivity to a 90%[2]. The used techniques include M, two-dimensional and Doppler modes in all their modalities as well as three-dimensional (3D) ultrasound, especially with the incorporation of spatio-temporal image correlation (STIC)[2].

The term heart disease includes any heart condition, which can be congenital or acquired, compatible or incompatible with life[3]. Congenital heart diseases, on the other hand, are a frequent cause of death in the neonatal stages and the first year of life[4]. Congenital heart alterations are the most frequent type of defects with an incidence between 4 and 13 per 1000 live births, accounting for a 20% of neonatal deaths and nearly a 50% of infant mortality due to defects[2].

The rate of prenatal detection widely varies according to the type of cardiac defect; thus, the most frequent ones are the interventricular and interatrial communications, which represent between a 20% and an 8%, respectively. Although they have a low hemodynamic impact, they are currently useful in aneuploidy screening[2].

With the new scientific and technological advances, fetal echocardiography has evolved from the simple evaluation of the fetal heart rate, which was already performed in the 1960s, to the possibility of diagnosing congenital defects at very early

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stages, thus being able to offer appropriate treatments when possible[5], because it allows to visualize and examine the heart during the phases of fetal growth in patients at risk of congenital heart disease[5].

The value of this technique greatly depends on the training of the person performing it. An experienced echocardiographer represents a guarantee for the mother and the fetus. In Cuba, the technique has been incorporated for several lustrums and very good results have been obtained as shown by the statistics, since in 2017 only 44 children under one year old died from congenital heart defects[6]. These data also demonstrate the good work that has been carried out with pregnant women in our country and the performance of necessary complementary tests in the gestation period.

Nowadays, fetal ultrasound shows high rates of sensitivity and specificity, and it is the main available tool for the early diagnosis of congenital heart defects.

CONFLICT DE INTERESTS

None declared.

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