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D-EXOKG APPEARANCES OF VENTRICULAR BARRIER DEFECTS IN YOUNG CHILDREN

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Annotation : Ventricular septal defect is the most common congenital heart defect in children and the second most common congenital anomaly in adults, second only to bicuspid aortic valve. .absence of a barrier between the right and left ventricles. Ventricular septal defect is the main mechanism of hemodynamic disturbance. Although most ventricular septal defects close spontaneously, if they are not present, major defects are pulmonary arterial hypertension, ventricular dysfunction, and arrhythmias. can lead to harmful complications such as increasing the risk. Diagnosing ventricular septal defects in children using D-ExoKG increases the chances of early detection of the disease.

Key words: D-ExoKG, congenital heart defects, tetrad of Fallo, hemodynamics

Relevance : Disruption of the development or synthesis of one of the above-mentioned components during the morphogenesis of the embryonic heart leads to the appearance of a ventricular septal defect in the corresponding component. Various anatomical locations and histological changes of the ventricular septal defects are classified in several ways. and led to systems of nomenclature. Complexities in describing ventricular septal defect and multiple synonyms were improved after a new unified classification was established and divided ventricular septal defects into four main groups: Category 1: These ventricles aro septal defect is located below the semilunar valves (aortic and pulmonary) on the crista supraventricularis in the outlet septum of the right ventricle, so it is sometimes called supracristal. This is the rarest type, and all ventricles are aro Obstructive defects account for only 6%, with the exception of the Asian population, where it accounts for approximately 30%. Aortic valve prolapse and regurgitation can cause right and/or non-coronary aortic valve cusps. It is common due to the loss of support. It is common for these defects to close spontaneously. often involves the muscular septum. The septal leaflet of the tricuspid valve sometimes forms a "pouch" that reduces the shunt and causes it to close spontaneously. Type 3: This is the right It is located at the entrance of the ventricular septum below the inlet valves (tricuspid and mitral). It accounts for only 8% of all defects. It is observed in patients with Down syndrome. Type 4: This is located in the muscular septum and is usually confined to the muscle at the apical, central, and outflow portions of the interventricular septum. Although the ventricles are classified by the location of the septal defects, they can also be classified by size. .The volume is described in relation to the diameter of the aortic annulus.

If they are less than or equal to 25% of the diameter of the aortic annulus, it is small, if it is more than 25% but less than 75%, then it is medium and greater than 75% of the diameter of the aortic annulus. is considered large

Materials and methods: D-ExoKG, in addition to showing the morphology of heart structures, provides information about their movement and obtained parameters. Study of blood flow velocity with the help of doppler provides very important information about valvular and congenital defects, LV filling. Doppler measurements are based on calculating the speed of an object by changing the frequency of the reflected signal. Usually, the Doppler frequency shift is in the range that can be perceived by the human ear and can be reproduced as sound by D-ExoKG.Doppler modes:

1. Pulse Doppler mode allows to estimate the volume of blood flow control in a certain area by placing it.

2. The continuous wave Doppler mode allows you to determine any value of blood flow velocity, but it does not allow you to accurately determine the location along the ultrasound beam where the maximum velocity is measured. Thus, continuous wave and pulsed Doppler modes complement each other: the first one allows to determine very high velocities without determining their localization; using the second, on the contrary, it is possible to establish the localization of velocities, but it is not possible to estimate high-speed flows.

3. Color Doppler map - mode in which blood flow velocity is coded in different colors and the color map is superimposed on a 2D or 3D image. Typically, blood flow rate to the sensor is coded in red, and blood flow rate out of the sensor is coded in blue. Then determining the velocities coded in a certain color is called autocorrelation it is carried out with several measurements in a mode reminiscent of pulsed Doppler using a simplified analysis method. Doppler analysis of high-amplitude, low-speed ultrasound pulses from heart tissue is called tissue Doppler. It is mainly used to assess myocardial function. Measurement of the longitudinal (apical to base) velocities of the LV basal segments provides information on its overall systolic and diastolic function. In addition, the spatial velocity gradient can be used to calculate the regional strain rate ("strain rate") measured in s-1 or hertz, and integrating the strain rate over time allows the calculation of the actual strain ("strain").), measured as a percentage. Deformation - shortening and stretching of the myocardium in the longitudinal direction in the apical sections, as well as thickening or thinning along the short axis in the parasternal sections. The advantage of deformation assessment is its true local nature, and the speed of myocardial movement is always influenced by the movement of adjacent segments and the heart as a whole. Recently, it has become possible to estimate strain using diffraction spot tracking techniques, which are non-Doppler and therefore independent of scanning angle. This method allows measuring

regional tissue velocity, stress and strain rate in any direction. Tissue velocity, stress and strain rate can be displayed on the screen in 2D color mode and graphically (velocity over time)

CONCLUSION

The possibilities of D-ExoKG for ventricular barrier defects in children are very wide. Because D-ExoKG is highly capable of detecting all hemodynamic changes in the heart and any pathology. Early detection and diagnosis of this disease in children greatly increases the chances of achieving disease optimization.

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