

Screening of Congenital Heart Diseases with Fetal Phonocardiography

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Abstract : The paper presents a novel screening method to indicate congenital heart diseases (CHD), which otherwise could remain undetected because of their low level. Therefore, not belonging to the high-risk population, the pregnancies are not subject to the regular fetal monitoring with ultrasound echocardiography. Based on the fact that CHD is a morphological defect of the heart causing turbulent blood flow, the turbulence appears as a murmur, which can be detected by fetal phonocardiography (fPCG). The proposed method applies measurements on the maternal abdomen and from the recorded sound signal a sophisticated processing determines the fetal heart murmur. The paper describes the problems and the additional advantages of the fPCG method including the possibility of measurements at home and its combination with the prescribed regular cardiotocographic (CTG) monitoring. The proposed screening process implemented on a telemedicine system provides an enhanced safety against hidden cardiac diseases.

Keywords : cardiac murmurs, fetal phonocardiography, screening of CHDs, telemedicine system

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