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Ehokardiografija kod bolesnika s dijabetesom

Echocardiography and patients with diabetes

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Dijabetes danas ima dimenziju epidemijske bolesti, a prati ga značajno povišena incidencija kardiovaskularnih bolesti i povišeni kardiovaskularni mortalitet. Obzirom na ozbiljnost "smrtonosnog dueta" imperativ moderne medicine je tražiti dijabetes kod kardijalnih bolesnika, a s druge strane, što ranije otkriti bolest srca kod bolesnika s dijabetesom.

Dijabetes može sam po sebi štetno utjecati na strukturu i funkciju srca. Iako su kardijalne manifestacije dijabetesa nespecifične, njihovo otkrivanje ima bitan utjecaj na liječenje. Upravo ehokardiografija ima važnu ulogu u pravovremenom otkrivanju dijabetičke bolesti srca, a uključuje procjenu dijastoličke i sistoličke funkcije, strukturnih promjena srca, utvrđivanje dijabetičke kardiomiopatije i indirektnih pokazatelja koronarne bolesti.

Dijastolička disfunkcija — studije su pokazale postojanje dijastoličke disfunkcije kod 10-30% bolesnika s dijabetesom. Takav nalaz kod asimptomatskog bolesnika može biti od velike koristi u određivanju terapijskih smjernica. Nove studije trebale bi istražiti "cost-benefit" postavljanja dijagnoze subkliničkog dijastoličkog poremećaja, kako bi se ehokardiografija mogla preporučiti kao rutinski "screening" test u takvoj populaciji.

Sistolička disfunkcija — prema nekim istraživanjima sistolička funkcija je promijenjena do u 70% bolesnika s dijabetesom. Takav nalaz teško je potvrditi u svakodnevnoj praksi jer se odnosi na minimalne funkcionalne promjene i potrebno je učiniti stres ehokardiografiju kako bi se potvrdila dijagnoza. Primjenom tkivnog doplera može se dokazati da uz normalnu ejekcijsku frakciju postoji redukcija longitudinalne kontraktilnosti. Inače, klasičan nalaz sistoličke disfunkcije s reduciranom ejekcijskom frakcijom prisutan je u značajno manjem postotku bolesnika.

Strukturne promjene srca — gotovo u trećine bolesnika s dijabetesom može se utvrditi zadebljanje stijenki odnosno hipertrofija lijevog ventrikula bez pridružene arterijske hipertenzije. Također se može naći dilatacija lijevog ventrikula bez pridružene koronarne bolesti. Tipičan je nalaz promijenjene ehogenosti miokarda koji je hiperehogen i nešto inhomogeniji.

Koronarna bolest srca — glavni je uzrok smrtnosti u bolesnika s dijabetesom, a često se dijagnosticira kasno zbog asimptomatske ishemije. U tim slučajevima ehokardiografija može odigrati ključnu ulogu s nalazom regionalnih poremećaja kontraktiliteta. S druge strane kod simptomatskih bolesnika ili onih kod kojih se sumnja na koronarnu bolest, ehokardiografija bi uvijek trebala prethoditi invazivnoj obradi bolesnika s dijabetesom zbog procjene ukupne sistoličke funkcije, ali i određivanja potencijalno vijabilnog miokarda.

Diabetes today has the dimension of an epidemic disease, resulting in a significantly increased incidence of cardiovascular disease and increased cardiovascular mortality. Considering the seriousness of the "lethal duet", the imperative of modern medicine is to identify diabetes in cardiac patients, while on the other hand identify as early as possible heart disease in patients with diabetes.

Diabetes may of its own accord exert a negative influence on the structure and functioning of the heart. Therefore, even though cardiac manifestations of diabetes are nonspecific, their detection has a significant influence on treatment. Basically, echocardiography has an important role in timely detection of diabetic heart disease, and includes the assessment of diastolic and systolic functioning, structural changes of the heart, detection of diabetic cardiomyopathy and indirect indicators of coronary disease.

Diastolic dysfunction — studies have shown the existence of diastolic dysfunction for 10-30% of patients with diabetes. Such findings with asymptomatic patients may be of great help in determining treatment guidelines. New studies should investigate the cost-benefit of utilizing diagnosis for sub-clinical diastolic disorders, so that echocardiography might be recommended as a routine screening test for such a population.

Systolic dysfunction — based on some researches systolic function has been changed in up to 70% of patients with diabetes. Such findings are hard to confirm in everyday practice because it relates to minimal functional changes and it is necessary to perform a stress echocardiography in order to confirm the diagnosis. Changes to the tissue Doppler can show that with normal ejection fraction there exists a reduction in longitudinal contractility. Consequently, the classic findings for systolic dysfunction with reduced ejection fraction are present in a significantly smaller percentage of patients.

Structural changes in the heart — almost a third of patients with diabetes show evidence of thickening of the walls or hypertrophy of the left ventricle without associated arterial hypertension. There can also be found dilatation of the left ventricle without associated coronary disease. A typical finding is changes to the echogeneousness of the myocardium which is hyper-echogeneous and somewhat inhomogeneous.

Coronary heart disease — the main cause of death in patients with diabetes, and which is often diagnosed late due to asymptomatic ischemia. In such instances, echocardiography may play a key role in findings with regional contractility disorders. On the other hand, with symptomatic patients or those considered to suffer from coronary

Dijabetička kardiomiopatija — definira se kao disfunkcija ventrikula koja nastaje neovisno o koronarnoj bolesti i hipertenziji. Za razvoj klinički manifestne dijabetičke kardiomiopatije može biti potrebno i nekoliko godina. Dijastolička disfunkcija predstavlja najraniju predkliničku manifestaciju bolesti koja prethodi sistoličkoj disfunkciji koja se kasnije može razviti u simptomatsko zatajivanje srca. Ehokardiografski se mogu utvrditi tri različita stadija dijabetičke kardiomiopatije: 1. rani stadij - nalaz bez strukturnih promjena (normalne dimenzije LV), a kardijalna disfunkcija može se utvrditi samo senzitivnijim metodama kao što je tkivni dopler. 2. srednji stadij karakteriziran je manjim promjenama veličine i debljine stijenki LV, ali sa značajnim promjenama dijastoličke i sistoličke funkcije koje mogu biti utvrđene konvencionalnom ehokardiografijom. 3. kasni stadij obuhvaća značajne strukturne i funkcionalne promjene.

Zaključak — Ehokardiografija je dijagnostička metoda koju bi bilo opravdano učiniti kod svakog novootkrivenog dijabetičara, a preporuka učestalosti kontrolnih pregleda ovisila bi o samom nalazu ali i pratećim čimbenicima rizika. Međutim, "cost benefit" takvog pristupa za sada nije opravdan, a ehokardiografija je trenutno indicirana kod svih dijabetičara sa sumnjom na kardiovaskularnu bolest kao i kod onih koji imaju dodatne čimbenike rizika.

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Diabetic cardiomyopathy — is defined as a dysfunctional ventricle resulting independently of coronary disease and hypertension. Development of clinical manifestation of diabetic cardiomyopathy may require a few years. Diastolic dysfunction represents the earliest preclinical manifestations of illness that precedes systolic dysfunction which may later develop into symptomatic heart failure. Echocardiographic determination of the three various stages of diabetic cardiomyopathy is possible: 1st early stage: - finding without structural changes (normal LV dimensions), while cardiac dysfunction can only be detected by using some more sensitive methods such as tissue Doppler. 2nd middle stage: is characterized by slight changes in the size and thickness of the LV walls, but with significant changes to the diastolic and systolic function which may be determined by conventional echocardiography. 3rd late stage: includes significant structural and functional changes.

Conclusion — the echocardiography is a diagnostic method that might be justified for each newly identified diabetic patients, while a recommendation for frequent control checkups would depend on the findings themselves but also on the associated risk factors. However, the cost-benefit of such an approach is not justified for the time being, while the echocardiography is currently used for all diabetics thought to suffer from cardiovascular disease as well as those who possess additional risk factors.

Ehokardiografija u plućnih bolesnika

Echocardiography in pulmonary patients

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U bolesnika s kroničnom plućnom bolesti i/ili zatajenjem desnog srca ehokardiografija omogućuje procjenu plućne hipertenzije, veličine i sistoličke funkcije desnog ventrikula (DV) te potvrdu kliničke dijagnoze plućnog srca. Kod bolesnika s primarnom plućnom hipertenzijom ehokadiografijom se isključuju drugi uzroci plućne hipertenzije kao što su atrijski septalni defekt ili mitralna regurgitacija, a serijskim određivanjem plućne hipertenzije može se pratiti učinkovitosti terapije. Kod manjeg dijela bolesnika s plućnom embolijom može se prikazati ostatak tromba koji potiče ili prolazi kroz desno srce, dok je ipak veća je korist u procijeni indirektnih znakova plućne embolije kao što su povišen tlak u plućnoj arteriji, akutno tlačno opterećenja desnog ventrikula, dilatacija i disfunkcija DV te trikuspidna regurgitacija (TR).

In patients with chronic pulmonary disease and/or failure of the right heart, echocardiography allows assessment of pulmonary hypertension, the size and systolic function of the right ventricle (RV) and confirmation of the clinical diagnosis of the pulmonary heart. For patients with primary pulmonary hypertension, the echocardiography excludes other causes of pulmonary hypertension such as atrial septal defects or mitral regurgitation, and serial determination of pulmonary hypertension allows assessment of treatment efficacy. In a smaller percentage of patients with pulmonary embolism, the remaining thrombus may be indicated which affects or passes through the right heart, whereas the greater use in assessment of indirect signs of pulmonary embolisms such as increased blood pressure in the pulmonary artery, acute pressure exerting pressure on