INTRAVENTRICULAR CONDUCTION SYSTEM DEFECTS: POSSIBLES ETIOLOGIES - 2009

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There are multiple types of intraventricular conduction abnormalities, each with its own unique clinical significance. It is useful to categorize conduction abnormalities, or blocks, by the number of fascicles involved.

Below the AV node and bundle of His, the conduction system divided into a right bundle and anterior, septal and posterior fascicles of the left bundle. Conduction block in each of these fascicles can be recognized on the surface ECG and VCG.

Intraventricular conduction defects include the unifascicular blocks (right bundle branch block (RBBB), left bundle branch block (LBBB), left anterior fascicular block (LAFB), left septal fascicular block (LSFB) and left posterior fascicular block (LPFB) and the bifascicular blocks (RBBB plus LAFB, RBBB plus LPFB and RBBB plus LSFB) and fascicular LBBB. The following are the main cause of these dromotropic defects

1) Coronary artery disease, it constitutes the main cause in the first world.
2) Systemic hypertension
3) 1and 2 in association
4) Cardiomyopathies: Primary and Secondary: isolated left ventricular noncompaction; Chronic chagasic cardiomyopathy: the most frequent one in Latin America

5) Myocarditis: Infectious Disorders (Specific Agent) bacterial, viral, trichinosis, Rocky mountain spotted fever, fungal. Infected organ, abscesses.
6) Infiltrative cardiomyopathies: systemic sarcoidosis (granulomatous), cardiac amyloidosis hemochromatosis (Storage Disorders), scleroderma,: All are systemic infiltrative disorders that commonly affect the heart. Owing to their potential for diffuse organ involvement, these diseases may present with myriad clinical manifestations. Conduction system abnormalities are common, and each of these disorders has been associated with sudden cardiac death.
7) Lev disease or progressive idiopathic sclerosis of the “cardiac skeleton”. With a clinical behavior similar to Lenègre disease, however, it occurs in elderly patients
8) Lenègre disease, progressive cardiac conduction defect (PCCD) or “idiopathic” sclerosis of the intraventricular His system: by mutation in the SCN5A gene, the same one affecting Brugada Syndrome.
9) A nonsense SCN5A mutation associated with Brugada-type electrocardiogram and intraventricular conduction defects.
10) Aortic insufficiency: attributed to the mechanical effect of jet regurgitation on the posterior portion of the left septum, the site that the thick LPF goes through (LV inflow tract)
11) Aortic stenosis
12) Aortic stenosis associated with aortic insufficiency
13) Supravalvar aortic stenosis
14) Coarctation of the aorta
15) Dissecting aortic aneurysm
16) Massive calcification of the “cardiac skeleton”
17) Hereditary, Familial, genetic disorders: Myotonic dystrophy type 1 (DM1): It is an autosomal dominant multisystemic disease with frequent cardiac involvement that may cause sudden death. Cardiological abnormalities are detected in approximately 90% of patients. Disturbances of intraventricular conduction with prolongation of HV interval are frequent (70%).(2). Dominant SCA/ Spinal Cerebellar ataxia, Friedreich´s Ataxia, Kearns-Sayre ophthamoplegic Syndrome.

18) Electromagnetic, Physics, trauma, Radiation Causes: After percutaneous replacement of the aortic valve (3), Secondary to blunt cardiac injury (4). With minimal nonpenetrating chest injury, cardiac surgery, cardiac injury, heart transplant, myocardiapost-operative fibrosis.

19) Chronic kidney disease (5)

20) Neoplastic Disorders: primary and secondary tumors (metastais to heart

21) Isolated congenitally complete heart block secondary to combined nodoventricular and intraventricular discontinuity.(6)

22) Usage, Degenerative, Necrosis, Age Related Disorders: Heart fatty degeneration.

References

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