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Hypertrophic Cardiomyopathy the Fascinating Entity with Treatment from the Surgical to the Molecular (Mavacamten)

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Obstructive hypertrophic cardiomyopathy is a genetic disease of autosomal dominant inheritance, characterized by an increase in ventricular mass and myocardial disorganization, which consists of an asymmetric left ventricular hypertrophy, poor position of the mitral valve, which leads to an asymmetry of the myocardial fibers of actin and myosin All these all these works were described by Goodwwn, Maron, Bonds, Cooley in 1970, which produce symptoms such as respiratory distress, lethal arrhythmias, sudden death, angina pectoris, atrial fibrillation and treatment in the last 60 years has been myomectomy called Morrow operation, septostomy, mitral valve replacement, placement of a defibrillator for sudden death and placement of alcohol in the septal artery to produce myocardial ischemia in the anterior face and decrease the gradient in the left ventricular outflow tract. The symptomatic pharmacological treatment of this entity has been with disopyramide, beta-blockers and calcium antagonists with acceptable results. In severe cases, myomectomy has had to be used since 1960, by different groups of cardiovascular surgeons such as Denton Cooley and other groups with acceptable results. Pharmacological treatment depends on the severity of the hypertrophic cardiomyopathy and the degree of left ventricular hypertrophy, gradient in left ventricular outflow tract greater than 30 mmHg, Presence of a gradient greater than 80 mmHg with nitro glycerin, or after premature ventricular contraction, an increase in the gradient phenomenon called Brockenbrough. Valsalva maneuver, use of isoprenaline in the cardiac catheterization laboratory as part of the protocol to induce the gradient in the left ventricle outflow tract. Cardiac hyper contractility in the pathophysiological abnormality in hypertrophic cardiomyopathy is the determinant of the obstruction in the tract outflow the left ventricle. This hereditary disease is complex in view of the fact that there is an interaction of actin and cardiac myosin which produces the state of hyper-contractibility, abnormalities in tonic function days and dynamic obstruction of the left ventricular outflow tract. Pharmacological therapy as noted above with disopyramide, beta blockers, calcium antagonists has been the treatment for the last 30 years. Recently, after molecular biology studies and the detection of mutations, documenting four of them, an inhibitor of cardiac myosin atpase has been proposed, which is a selective inhibitor of beta cardiomyosin and reduces the crossing and formation of actin and myosin. Recently there a study the Explorer in phase three multicenter randomized double blind placebo controlled in 68 clinical centers and 13 countries.

This study was described in circulation heart failure 2020 called the explorer study evaluating patients with symptomatic obstructive hypertrophic obstructive cardiomyopathy by Olí Voto and Jacobi. The study was carried out in 30 weeks starting with 5 mg or placebo receiving a vacant main and evaluating is the patient each two to four weeks, performing cardiac electro-echo enzymes and subsequently evaluating the grading in the left ventricle outflow tract Kansas City questionnaire for cardiomyopathy questionnaire for dyspnea. This study carried out between May 30/2 1018 and July 12 2019 included 429 adults in which 250 and one that is 59% fire enrolled in a random way assigned soul to bike ma vacant in 123 that is 49% and placebo that was 128 patients that was 51% The study concluded

that the most vacant in improved the capacity exercise the obstruction in left ventricular outflow tract, functional class in patients with obstructive hypertrophic cardiomyopathy he. Several patients presented elevation of cardiac markers such as BNP, but BNP and troponin A and Agus, very similar to the Maverick study where they presented non-extractive cardiomyopathy, was suggesting that the reduction of the gradient may explain the benefit observed in the patients in the explorer study. A five-year, long-term study called the mava study is currently underway to see the results compared to placebo.

Four mutations have been described in obstructive hypertrophic cardiomyopathy and the question is each of my heart disease with a different mutation will behave with the most vacancies in the same way as the explorer study or each cardiomyopathy with each mutation will have to be studied separately to see if this small molecule is present Cardio myosin beta blocker is really the future in this complex entity that has caused so many deaths in the last 40 years including heart transplantation. Mutations causing bundle hypertrophic cardiomyopathy have been identified in 11 cardiac sarcomeric protein genes. Traditionally cardiomyopathy Hypertrophic bundle is due to a mutation of the myosin or protein Cse gene called MYBPC3. This disease has presumably been caused by the substitution of guanine for Si Tocin in the uncle 269 nucleus of MYBPC3. To date, more than 400 different mutations causing bundle hypertrophic cardiomyopathy have been identified in 11 genes that encode proteins of the Cardiac sarcomere. The former genes for the beta myosin heavy chain MYH7 is the myosin-fixing protein C, regulatory myosin light chain 2MYL2 and essential myosin light chain 1MY L3.

Genetic studies are performed with lesson two PCR DNA polymerase chain reaction amplification and the adjacent intron regions of the MYB PC3 gene. Since the first identification in 1990 of one of the genes related to hypertrophic cardiomyopathy, the progressive knowledge of the genetic bases of the disease has revolutionized the world, especially for the follow-up of these patients and their families, the genetic study carried out has allowed to identify the It is interesting that people with obstructive hypertrophic cardiomyopathy know the molecular basis of cardiomyopathy Knowing that mavacamten could inhibit beta cardio myosin, what is the gene that produces it. Hypertrophic cardiomyopathy is caused by mutations in the sarcomere proteins, the contractile building blocks of the heart, more than 150 causal mutations in the move sarcomere contractile proteins have been identified in other literature. The future with this new mavacamten drug is promising and from a pharmacological point of view it will be the logical alternative in this complex disease that has had a great historical journey from surgery with myomectomy, mitral valve replacement, alcohol infusion, to everything heart transplantation. The future is now we must reflect and detect all the European, Asian, North and South American mutations. One must be optimistic that this may be the treatment after a long surgical and pharmacological journey, until reaching the molecular biology of this entity [1-4].

Ethical Responsibilities

The authors declare that they have no conflicts of interest when writing the manuscript.

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