President's Page

Hypertrophic Cardiomyopathy: What Have We Learned in Fifty Years?

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Five decades have already passed since the first modern description of hypertrophic cardiomyopathy (HCM) by the British pathologist Donald Teare.[1] After its half-century history, the secrets of the disease have begun to be revealed; however, there is still much that we do not know.

HCM is the disease with the largest heterogeneity in clinical cardiology, in the sense of its clinical manifestations, phenotype, and clinical outcome. Its incidence is far from negligible, since it affects one in five hundred of the general population.[2] It is very interesting to note that in 60% of patients the initial diagnosis is made on the basis of clinical manifestations, while in the remaining 40% it is a chance finding in asymptomatic individuals who are being checked because of a positive family history for HCM, a pathological ECG, or a heart murmur.[3] Early reports of a high rate of sudden death, from referral centres for the disease, no longer apply today, since studies of non-selected sample populations of patients with HCM show that the incidence of sudden death is <1% per year.

During the fifty years that have passed it has been discovered that HCM is for the most part an obstructive disease of the left ventricular outflow tract, since 70% of patients have outflow tract obstruction at rest or on exercise.[4] It has also been elucidated that the obstructive type of the disease is associated with a worse course and prognosis compared with the non-obstructive type,[5] although its correlation with the risk of sudden death is a matter of contention.[6,7] The ECG changes precede the development of hypertrophy,[8,9] and pre-clinical diagnosis of the disease in genetic carriers is feasible using tissue Doppler.[10] It took a major advance in genetics to establish that HMC was a disease of the sarcomere, characterised by mutations of the genes that code for the contractile and regulatory proteins of systole. It is of great interest that 3-5% of patients have double or triple mutations that are associated with a very poor course and prognosis.

Also important were the developments in the field of prevention of sudden death, with the introduction of automatic transvenous defibrillators, and in the field of invasive therapy for symptomatic obstructive HCM that is refractory to medication. More specifically, surgical myectomy can completely change the natural history of the disease, preventing heart failure, improving survival, and probably reducing the probability of sudden death.[11-13]

What can we expect in the future? First, we can expect that, as the cost comes down, a genetic test will be performed in all patients with HCM. We can expect the development of new therapies that will prevent the clinical manifestation of the disease in "healthy" genetic carriers, as well as drugs that can reduce myocardial fibrosis, modify or even reverse the phenotype.[14]

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