Editorial / *Editöryal Yorum*

Valvular heart disease epidemiology: a Turkish perspective

Kalp kapak hastalığı epidemiyolojisi: Türk bakış açısı

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Valvular heart disease (VHD) occurs less frequently than coronary heart disease, heart failure, or hypertension, but it is still an important cause of increased morbidity and mortality. VHD is of interest for several reasons, including it's commonality and that it often requires intervention. Also, there are very few registers or trials associated with this disease compared with other heart diseases. Finally, important changes have occurred regarding the presentation and treatment of the disease in recent years.[1]

Research into the epidemiology of VHD is difficult due to logistical difficulties of obtaining high-quality echocardiographic testing in large numbers of patients. The actual incidince of valve diseases is still unknown. The overall prevalence in the USA is 2.5% with a wide age-related variation from 0.7%-13.3%.[2] Similar age dependency was also shown in the Euro Heart Survey.[1] Also, the distribution of the VHD is not exactly known. In pooled data from the CARDIA, ARIC and CHS studies, mitral valve disease was the most frequently seen valvular lesion.[3] In the Euro Heart Survey, which included 4910 patients in more than 25 countries, aortic stenosis was the most frequent manifestation, accounting for 43% of all patients who had VHD.[1] However, those studies were done mostly in developed countries. Two thirds of the world's population still lives in developing countries with a high prevalence of rheumatic fever and rheumatic heart diseases (RHD) in which great registries or surveys about VHD epidemiology is lacking.

Abbreviations:

GDP	*Gross domestic product*
HDI	*Human Development Index*
OECD	*The Organization for Economic Co-operation and Development*
PPP	*Purchasing power parity*
RHD	*Rheumatic heart disease*
VHD	*Valvular heart disease*
WHO	*World Health Organization*

"The Turkish registry of heart valve disease" study fills an important gap in our knowledge about the epidemiology of VHD in our country.[4] This is the first time that reliable estimates have been reported for the prevalence, age and gender distribution of VHD. In this study the most frequent native valvular heart disease was mitral regurgitation followed by multiple valvular heart diseases. In this study we also saw that RHD was still the most significant manifestation of VHD. While in most of the developed countries the epidemiology of VHD is changing, in Turkey RHDs are still the most frequent cause of VHD. Four important factors may have contributed to the changes in the developed countries: increase in age, increased ability to ascertain VHD by echocardiography, the decrease in the rheumatic fever incidence and general developmental status of the countries. These factors are specifically discussed in the following sections in the context of Turkey.

Increasing age. The prevalence of VHD increases sharply with age, owing to the predominance of degenerative etiologies. In the developed world, low

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birth rates and increasing life expectancy are currently leading to an inversion of the age pyramid. Life expectancy at birth in Turkey is 74 years, which is six years lower than the Organization for Economic Co-operation and Development (OECD) average of 80 years. The life expectancy for women is 77 years, compared with 72 years for men. In Turkey, our life expectancy is increasing, but it is still low compared to most European countries.[5]

Rheumatic fever incidence. Acute rheumatic fever is the most common cause of acquired heart disease in developing countries. The overall mean annual incidence rates were lowest in American and Western European countries (<10/100.000) with relatively high rates reported in Eastern Europe, Asia, Australasia and the Middle East (>10/100.000). No studies were available from Africa, a continent which may harbor nearly 50% of the cases of RHD in children under the age of 15 years. Turkey is a developing country and the number of reports is not adequate for an accurate estimation of ARF incidence. Saraçlar et al.[6] found the incidence of ARF in Turkey was 20 per 100.000 children in 1972-1976. Beyazova et al.[7] estimated the incidince as 56.6 per 100.000 children during 1970-1973 and 36.7 per 100.000 15 years later. But these studies are not large enough to obtain reliable data and large scale studies are needed.

A decline in ARF incidence is expected, mainly due to a combination of improved awareness of the disease among the community and healthcare workers, leading to improved diagnosis and treatment of streptococcal pharyngitis in addition to greater use of secondary prevention of ARF.

We should keep in mind that the interval between the initial episode of rheumatic fever and clinical evidence of valvular involvement is variable, ranging from a few years to more than 20 years. Today we are looking at previously infected patients; therefore we expect to diagnose rheumatic valvular diseases frequently for at least one more decade unless adequate prevention strategies are applied.

Technical equipment. In our country the average number of echo devices in inpatient health care facilities per 1 million patients is 15.8 in 2011. This number shows some geographical differences varying between 12.1 (Northeast Anatolia) and 21.1 (West Anatolia).[5] There is not much data comparing echocardiography device numbers with European countries. However, the number of other imaging modalities like computed tomography and magnetic resonance imaging in our country are near the average of OECD countries.[5]

Developmental status. There are great differences in terms of epidemiology of VHD between developing and developed countries. Nevertheless, the appropriate index for developmental status is questionable. Gross domestic product (GDP), which is the value of all final goods and services produced within a state in a given year, is the most commonly used denominator for economic developmental status. Turkey has the world's 15th largest GDP-purchasing power parity (PPP) and 17th largest Nominal GDP.[8]

Another index especially useful for health status may be total health expenditure (PPP) per capita. Total health expenditure (% of GDP) in Turkey was last reported at 6.74 in 2010, according to a World Bank report published in 2012. Total health expenditure is the sum of public and private health expenditure. It covers the provision of health services (preventive and curative), family planning activities, nutrition activities, and emergency aid designated for health but does not include provision of water and sanitation. Turkey is 33rd among 34 OECD member countries and 67th among 193 World Health Organization (WHO) member countries in this regard.[9]

The third index may be the Human Development Index (HDI) which was introduced as an alternative to conventional measures of national development, such as level of income and rate of economic growth. The HDI provides a composite measure of three basic dimensions of human development: health, education and income. Turkey's HDI is 0.699, which gives the country a rank of 92 out of 187 countries with comparable data. The HDI of Europe and Central Asia as a region increased from 0.644 in 1980 to 0.751 today, placing Turkey below the regional average.[10] This data shows us we are growing economically but our health expenditure and education level are not satisfactory. As seen from the "The Turkish registry of heart valve disease" study, nearly half of the patients were primary school graduates and only 8% of the patients were university graduates. Based on this, one can surmise that education level is an important risk factor for VHD and improvement of educational level must be an important target to improve health status.

Valvular heart diseases have been relatively neglected by politicians, health economists and even by cardiologists. However, it is still a common problem for our country. The WHO has emphasized the collection of epidemiological data as an important step in planning and implementing national programs for the prevention and control of rheumatic fever and RHDs. These epidemiological data will allow policymakers and practitioners to identify groups or geographic areas that are most affected by acute rheumatic fever and RHDs in order to appropriately direct and concentrate control efforts. We know that VHD may be detected as an incidental finding in the asymptomatic patient or manifest at a later stage during the natural history with symptoms of dyspnea, chest pain or arrhythmia. Timely detection, referral and assessment are essential.

In conclusion, a coordinated multidisciplinary approach to research, education and clinical management is needed to improve diagnosis and outcomes for all patients with acute rheumatic fever and VHD in our country.

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