

Editöryal Yorum / Editorial

Erişkin hastalarda Eisenmenger sendromuna yaklaşım

Management of adult patients with Eisenmenger syndrome

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Abbreviations:

ES Eisenmenger syndrome

CHD Congenital heart diseases

PAH Pulmonary artery hypertension

PVR Pulmoner vasküler direnç

Congenital heart diseases (CHD) constitute a large proportion of the patients with pulmonary artery hypertension (PAH). In particular, in those with relevant systemic-to-pulmonary shunts obstructive arteriopathy developed in pulmonary arteries exposed to increased blood flow and pressure leads to increase in pulmonary vascular resistance (PVR). Four main clinical phenotypes have been defined in patients with PAH secondary to CHD [1-2] 1) Eisenmenger syndrome, 2) PAH associated with systemic-to-pulmonary shunts (frequently it develops secondary to moderate-to-large defects and pre-tricuspid shunts are the most frequent 3) PAH associated with small defects (generally ventricular septal defect of <1 cm or atrial septal defect of < 2 cm) (clinical picture resembles idiopathic PAH, and the contribution of the defect in the development of PAH is unclear or even assumed to be incidental) and 4) PAH developed during early, and late stage after complete defect correction. The articles published after the last 2013 Nice PAH Meeting also advice use of this classification.[3]

Eisenmenger syndrome (ES) is defined as reversed (pulmonary-to-systemic shunts) or bi-directional shunt secondary to severe increase in PVR in large systemic-to-pulmonary shunts. Most frequently it develops secondary to post-tricuspid defects.[1-3] In addition to predominant cyanosis; erythrocytosis, hyperviscosity, and multiple organ involvement are present due to chronic hypoxia. In these patients in addition to PAH, one must fight against many disorders including genetic anomalies (i.e. Down syndrome), predisposition to infection (central

nervous system abscesses, endocarditis etc.), bleeding episodes, hemoptysis, tendency to thrombosis, gout related to hyperuricemia, cholelithiasis secondary to hyperbilirubinemia, iron deficiency, cyanotic arthropathy and nephropathy, pulmonary artery aneurysm, heart failure, arrhythmia, and sudden cardiac death. Therefore, these patients should be followed and treated in centers specialized in CHD, and preferably experienced in PAH and lung transplantation.[1-3]

Because of delay in diagnosis and treatment of CHD in Turkey, more numbers of patients with ES reach adulthood compared to developed countries. However, only a limited number of centers are specialized for the treatment of these patients, and data about these patients are not known. Therefore, as a critically important issue, experiences related to cases with ES in our country should be shared, and awareness about this syndrome should be increased. In an article published in this issue of *Archives of the Turkish Society of Cardiology*, Taçoş et al., shared their experiences concerning their approach to adult patients with ES, and PAH-specific treatment in PAH center of Gazi University Faculty of Medicine.[4] Despite severe limitations of the study such as limited number of patients (n=12) and of only female gender, it is an important study regarding the preliminary outcomes of patients with ES from a PAH center in our country.

Although retrospective, another important feature of this study is the 5 years of follow-up period. Moreover, absence of any death during this follow-up



period may imply that the management of ES patients was effective in the center. However, exclusion of the cases with complex CHD might be a reason for lack of mortality.

Another important publication on patients with ES from our country is an article about a retrospective survey study which presented baseline data of 20 patients followed up with diagnosis of ES in The Cardiopulmonary Transplantation Unit of Ege University, Faculty of Medicine.^[5] Since all the patients were enrolled from a cohort of those waiting for cardiopulmonary transplantation, most of the patients (75%) were in functional class III and their study, do not include follow-up data and prognostic evaluation. Another publication of a multi-centered prospective study presents favorable effects of bosentan treatment on clinical and echocardiographical parameters in 23 patients with ES during a follow-up period of 24 months.^[6]

As is seen, only a limited number of data on adults with ES from our country are available. Therefore, every study on ES is important both for collection of relevant data, and raising awareness about the disease among physicians. When we review the world literature, a series of PAH associated with CHD which was presented by Institute of Cardiology University of Bologna (Orsola-Malpighi Hospital) in this year's European Heart Journal could guide our physicians on this issue.^[7] This large scaled long term study gives information on the retrospective follow-up of 90 PAH patients associated with CHD between the years 1998 and 2011. Forty-seven percent of the study population consisted of cases with ES which were mostly associated with (86%) post-tricuspid shunts. When compared to other 3 groups of PAH associated with CHD,^[3] patients with ES had the worst clinical, exertional, and functional characteristics, and the highest PVR. However, time to referral of these patients to tertiary medical centers was the longest. However, from a prognostic perspective, cases with ES had similar survival rates with PAH cases secondary to systemic-pulmonary shunts. Moreover, their survival rates were better than those of the cases with PAH associated with small cardiac shunts or patients who developed PAH following the correction of the defects. Intergroup differences in survival rates emerge especially after 2-5 years, and become conspicuous after 10 years. Similarly British registry on pediatric PAH associated with CHD has demonstrated much better survival rates in cases with ES when compared with those with corrected defects during a 5-year follow-up period.^[8] Higher right ventricular afterload (PVR) and nearly normal preload (right atrial pressure) values detected

among cases with ES in Bologna series could help for the explanation of the improved prognosis with better preserved right ventricular contractility in cases with ES included in these two registries.^[7,8]

Treatment modalities and targets in PAH secondary to CHD also demonstrate differences. In hypoxic cases, predominantly cases with ES, exercise capacity is already decreased, and for these patients, nearly 50 m increase in 6-minute walking distance is an adequate goal. Also, other accepted therapeutic targets are improvement to functional class I-II, and > 30 % decrease in PVR.^[1-3] Because of differences in underlying mechanisms, these patients are refractory to treatment with calcium channel blockers from the start. These patients respond well to PAH-specific treatment, and this treatment is indicated for functional class III patients. Since adequate data are lacking about initiation of PAH-specific drug treatment in class II patients with CHD, uncertainty exists about their drug therapy.

In conclusion, as emphasized in the case series by Taçoy et al., ES is a cause of severe morbidity and mortality.^[4] Regular follow-up in specialized tertiary centers, and treatment specific to PAH may possibly increase quality of life, and survival rates of these patients.^[4-8]

Conflict of Interest : None declared

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