Understanding Pulmonary Hypertension

THE HEART BEAT

By Dr. Omid Kohani

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When we talk about hypertension we usually refer to elevated blood pressure in the arterial system of the body, or systemic hypertension. However, the lung has a separate circulation where the right side of the heart pumps blood to lungs via the pulmonary circulation and the blood gets cleansed and returns to the left side of the heart to be pumped to the body. When the pressure in the vasculature of the lungs increases, the term *pulmonary hypertension* is used.

The elevated blood pressure in the lung arteries causes the right side of heart chambers become dilated and weak overtime. This causes inadequate circulation for oxygenation and produces shortness of breath. Oxygen level in blood decreases. The legs become swollen.Dizziness with activity and in extreme cases fainting can occur as the high pressure prevents bypass of enough volume of blood to the left side of heart and insufficient brain perfusion.

Pulmonary hypertension is either acquired secondary to another disease or inherited. The later type occurs typically in women and it's called primary pulmonary hypertension. The acquired ones are secondary to diseases such as collagevascular disease – namely Lupus, and Scleroderma; lung disease -namely emphysema, Chronic Obstructive Pulmonary Disease (COPD), Sleep Apnea; infection such as HIV; heart disease such as Congestive Heart Failure (CHF), and valvular diseases; and other miscellaneous causes such as medications namely famous diet pill Fen-Phen.

The diagnosis is suspected by the interviewing physician and physical exam. A chest x-ray, blood work and pulse oximetryare typically done as initial work up. An echocardiogram can detect the dilated right sided heart chambers and can estimate the blood pressure of the pulmonary arteries. In some cases, moving on to a more accurate and confirmatory test is needed via a catheter (Swan-Ganz) to measure the pressure inside the pulmonary artery.

Treatment of pulmonary hypertension involves treating the underlying factor as mentioned above. Decreasing the pressure of the lung arteries via certain medications is the key to improve shortness of breath and exercise tolerance. In severe cases, an infusion pump of medication is needed to maintain a comfortable resting state. In patients with critically elevated pulmonary hypertension, a lung transplant in a suitable candidate is curative however; post-transplant issues and short survival statistics after transplant may not be a desirable after all.

The prevalence of pulmonary hypertension is at a rise. We have become more aware now to detect the early stages of this disease and treat the underlying causes for which in many are lung disease and the high incidence of sleep apnea. Obesity is at a rise and its complication of sleep apnea, obesity hypoventilation syndrome, and high risk of clot forming propensity contributes to high incidence of pulmonary hypertension.