

Prof. Perk also pointed out that nongovernmental organizations are important to healthcare workers in promoting preventive cardiology and the European Heart Health Charter marks the start of a new era of political engagement in preventive cardiology.

The High Cost of Untreated CHD

Written by Rita Buckley

Globally, pulmonary vascular disease associated with congenital heart disease (CHD) may be the most preventable cause of pulmonary artery hypertension and related mortality and morbidity [Adatia I et al. *Chest* 2010]. Mohammed Omar Galal, MD, PhD, MBA, Prince Salman Heart Center, Riyadh, Saudi Arabia, presented an overview of advanced and combination therapies in patients with pulmonary arterial hypertension (PAH)-CHD.

Although progress in the diagnosis and treatment of CHD has reduced the number of PAH-CHD cases in Western nations, few PAH patients in developing countries have access to treatment. Adatia et al. [*Chest* 2010] estimate that 3 million children worldwide are at risk for the development of pulmonary vascular disease due to CHD; most have a reparable heart defect, such as an isolated atrial septum, ventricular septal defect, or patent ductus arteriosus.

PAH-CHD is classified into 4 types suitable for advanced therapy. These include 1) Eisenmenger Syndrome, 2) moderate to large shunt lesions with PAH, 3) small defects with PAH, and 4) PAH after repair of CHD [Galie N et al. *Eur Heart J* 2009; Simonneau G et al. *J Am Coll Cardiol* 2009]. Eisenmenger Syndrome is the most advanced form of pulmonary vascular disease secondary to CHD [Adatia I et al. *Chest* 2010].

Treatment options in PAH range from general measures to advanced therapies (Figure 1). Conventional treatments include diuretics, anticoagulants, oxygen therapy, digoxin, and calcium channel blockers. In a randomized trial with 2 years of follow-up, Sandoval et al. [*Am J Respir Crit Care Med* 2001] found that nocturnal oxygen therapy did not modify the natural history of patients with advanced Eisenmenger Syndrome. Calcium channel blockers benefit around 10% of patients with PAH and seem to improve survival, said Prof. Galal.

According to Prof. Galal, advanced therapy should be used if there is a negative vasoreactivity test or lack of clinical improvement with calcium channel blockers. It can also be used in all groups with a NYHA functional class of II, III, or IV. However, most data on advanced care are based on

studies with idiopathic PAH and PAH due to scleroderma, and the therapies are very expensive.

Figure 1. Treatment Options in PAH*.

<ul style="list-style-type: none"> ▪ General Measures 	<ul style="list-style-type: none"> ▪ Advanced Therapies <ul style="list-style-type: none"> ▪ Prostanoids <ul style="list-style-type: none"> ▪ Epoprostenol ▪ Treprostinil ▪ Iloprost ▪ Beraprost ▪ Nitric oxide ▪ PDE-5 inhibitors <ul style="list-style-type: none"> ▪ Sildenafil ▪ Tadalafil ▪ Vardenafil ▪ Endothelin receptor antagonists <ul style="list-style-type: none"> ▪ Bosentan ▪ Ambrisentan ▪ Combination therapy
<ul style="list-style-type: none"> ▪ Interventional Procedures (surgery) 	
<ul style="list-style-type: none"> ▪ Conventional Therapies <ul style="list-style-type: none"> ▪ Oxygen ▪ Anticoagulants ▪ Diuretics ▪ Inotropes ▪ Calcium channel blockers (CCBs) 	
<p>* Not all entities have been approved or are available in all countries.</p>	

PAH=pulmonary arterial hypertension; PDE-5=phosphodiesterase 5.

The 3 classes of advanced therapy include endothelin-1 receptor antagonists, phosphodiesterase 5 inhibitors, and prostanoids. Bosentan has been demonstrated to improve exercise capacity and stroke volume in patients without Down syndrome [Rubin LJ et al. *N Engl J Med* 2002]. In a medium-term follow-up study of adult patients with PAH associated with CHD, Duffels et al. [*Congenit Heart Dis* 2007] found that advanced treatment seemed to stabilize disease and decrease the rate of deterioration, especially in younger patients.

Based on these and other data, Prof. Galal concluded that PAH-CHD remains a serious disease leading to reduced quality of life and longevity, 4 classes of PAH-CHD justify advanced therapies, that short-term studies have confirmed the efficacy and safety of advanced/combination therapies, and long-term studies are still needed.

Greater Consistency and Protection with Newer Antiplatelet Agents

Written by Rita Buckley

Newer antiplatelet agents offer greater consistency and protection than the current standard of care. Eyas Al-Mousa, MD, Jordan University Hospital, Amman, Jordan, discussed the latest antiplatelet therapy for percutaneous coronary intervention (PCI).

Antiplatelet therapy is the cornerstone of treatment for patients who have acute coronary syndromes (ACS) and/or are undergoing PCI [Angiolillo DJ et al. *J Am Coll Cardiol* 2007].