A case report to WISPER about: What is Superior in Pulmonary Arterial Hypertension?

Natalie Kimpton[1], Madeleine Washbourne[1], Karl Winckel[1,2], Judith Coombes[1,2]

[1]Pharmacy Department, Princess Alexandra Hospital, Queensland, Australia

[2]School of Pharmacy, University of Queensland, Brisbane, Australia

Objective

To describe the application of specific drug therapies for group 1 pulmonary arterial hypertension (PAH) in the management of a patient poorly responding to standard therapy.

Clinical features

Mrs HF, a 67-year-old female presented with decompensated right-sided heart failure secondary to severe PAH (right ventricular systolic pressure [RVSP] = 66mmHg, mean pulmonary arterial pressure [mPAP] = 36mmHg) associated with connective tissue disease (Scleroderma). Adherence to medicines was unclear. Mrs HF's oxygen saturation (venous blood gas) was 70% on room air secondary to acute pulmonary oedema. Mrs HF's medication regime for PAH consisted of amlodipine, macitentan, sildenafil and selexipag. Attempts at up-titration of selexipag dose in the past was prevented by severe gastro-oesophageal reflux.

Literature review

PAH is a progressive disease with an inexorable advance to death, where current therapy only slows disease progression. Therapeutic classes of medicines indicated for specific treatment of group 1 PAH include endothelin receptor antagonists e.g. macitentan, phosphodiesterase type 5 inhibitors (PDE5i) e.g. sildenafil, prostacyclin receptor agonists e.g. selexipag, prostanoid analogues e.g. epoprostenol and soluble guanylate cyclase stimulators e.g. riociguat. The GRIPHON study demonstrated similar mortality among patients who received low (hazard ratio [HR] 0.60), and high-dose (HR 0.64) selexipag, therefore pursuing up-titration was unlikely to be beneficial. The REPLACE study showed switching to riociguat from sildenafil leads to a 21% clinical improvement in at least two of three variables (six-minute walk test, WHO functional class and *N*-terminal proBNP). Non-adherence to medicines is common in PAH with rates of around 42%.

Pharmacist interventions, case progress and outcomes

The medication regimen was not modified. The pharmacist counselled on management of adverse effects and importance of adherence. Mrs HF has since had two further hospital presentations for worsening heart failure and increased oxygen requirement.

Discussion

Increasing doses is not always beneficial in PAH. Pharmaceutical care should focus on medication adherence and management of adverse effects of medicines.

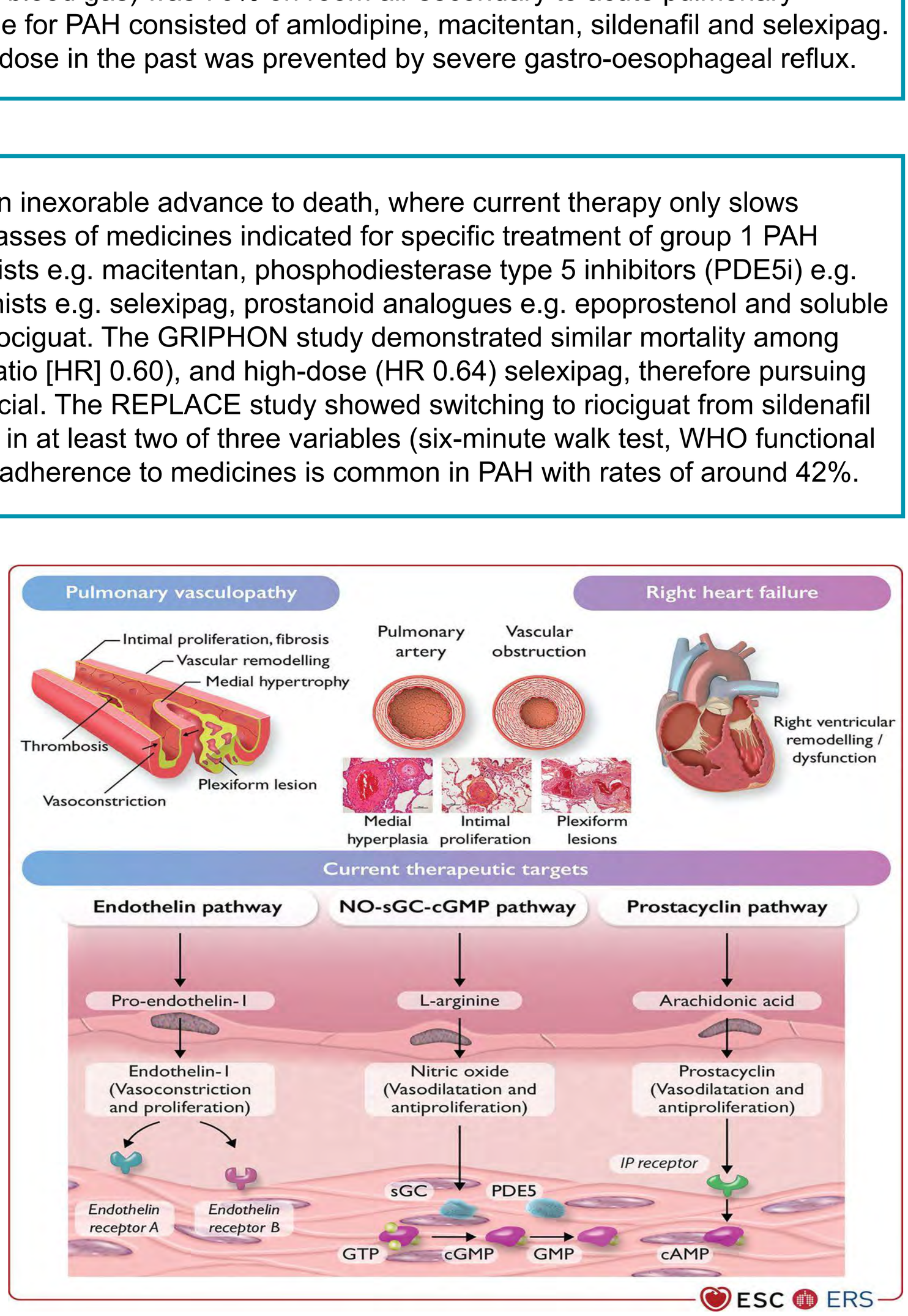

Figure 1: *Pathophysiology and current therapeutic targets of pulmonary arterial hypertension (group 1)[1]*

1. Humbert M, Kovacs G, Hoeper MM, Badagliacca R, Berger RMF, Brida M, et al. 2022 ESC/ERS Guidelines for the diagnosis and treatment of pulmonary hypertension. European Respiratory Journal. 2022;61(1):2200879. doi:10.1183/13993003.00879-2022