

ITNS GOLDEN TRIANGLE CHAPTER
Journal Club Summary

DATE: September 14, 2005

TOPIC: "Pharmacological Drug Therapy For Pulmonary Hypertension"

ARTICLES: 1. Hemodynamic Response to Sildenafil, Nitric Oxide, and Iloprost in Primary Pulmonary Hypertension
2. Sildenafil versus Endothelin Receptor Antagonist for Pulmonary Hypertension (SERAPH) Study

PRESENTER: Tammy Tokarczyk, Heart Transplant Coordinator

SPONSOR: Doug Doehring of Roche Laboratories Inc

ATTENDANTS: 28 Nurse Clinicians, Nurse Researchers, Coordinators and other Clinical Staff

SUMMARY:

In the first article, Ms Tokarczyk discusses the study's objective was to compare the effects of 3 different vasodilators and their different route of administration on 10 patients with primary pulmonary hypertension. The three vasodilators used in the study were sildenafil, nitric oxide and iloprost. Nitric oxide and iloprost are inhaled agents and sildenafil is an oral agent. All three drugs were tested on 10 patients with primary pulmonary hypertension during right side heart catheterization to determine the hemodynamic response. Nitric oxide, sildenafil, and iloprost caused a significant fall of mean pulmonary artery (PA) pressure and pulmonary vascular resistance (PVR). 7 out of 10 patients had a reduction in the PVR of $\geq 20\%$ with iloprost. Nitric oxide and sildenafil demonstrated a reduction in the PVR in only 4 out of the 10 patients. In addition, iloprost demonstrated improvement in oxygenation as shown in the increased arterial oxygen tension. In conclusion, nitric oxide, sildenafil, and iloprost demonstrated and improved pulmonary hemodynamics in patients with primary pulmonary hypertension. However, iloprost produced the most potent hemodynamic effects as well as increasing oxygenation.

In the second article, the Authors conduct a randomized double-blind study consisting of 26 patients with the diagnosis of Pulmonary arterial hypertension, idiopathic or associate with connective tissue disease with pulmonary hemodynamics as classified by the World Health Organization (WHO) functional Class III and exercise capacity classified by WHO functional class III/IV. The Authors compare sildenafil to the established conventional therapy bosentan. The subjects were divided into two groups. One group received sildenafil 50 mg po BID for 4 weeks then titrated to 50 mg po tid over 16 weeks. The second group received bosentan 62.5 mg po bid for 4 weeks then titrated to 125 mg po bid over 16 weeks. The sildenafil group was converted to the bosentan therapy in the fifth month. Patient's cardiovascular function were taken through measurement of right ventricular mass using cardiovascular magnetic resonance, 6 minute walk distance, cardiac function, brain natriuretic peptide, and Borg dyspnea index. The Authors took measurements of the above tests at established intervals. The group taking sildenafil showed significantly improvement in right ventricular mass, plasma brain natriuretic peptide levels, 6 minute walk distance, cardiac index and systolic left ventricular eccentricity index. The bosentan group improved 6-minute walk distance and cardiac index. In conclusion, Sildenafil added to conventional therapy reduced right ventricular mass, improved cardiac function and exercise capacity in patients with WHO functional class III. A lively interactive discussion followed Ms Tokarczyk's presentation.