Summary

Pulmonary arterial hypertension (PAH) is a progressive , and often fatal,debilitating disorder***(clavecilla.2003)***

The increased pulmonary artery (PA) pressure is due to disturbances in key vascular mediator pathways including relative deficiencies of vasodilators such as nitric oxide (NO) and prostacyclin, as well as exaggerated production of vasoconstrictors such as endothelin and thromboxanes. Vasodilators such as sildenafil are a natural initial therapeutic choice.

Sildenafil is a selective phosphodiesterase-5 inhibitor that has been reported to be a potent pulmonary vasodilator.

Sildenafil selectively inhibits phosphodiesterase 5 which leads to stabilization of acyclic guanosine monophosphase (CGMP).

CGMP is a second messenger of Nitric oxide (No). Stabilization of CGMP results in increasing No at the tissue level leading to pulmonary vessel vasodilatation**.**

Sildenafil is a more potent acute pulmonary vasodilator than inhaled nitric oxide however; sildenafil is not pulmonary vascular specific**.**

The current study was conducted at Benha university hospital during the period from October 2008 till May 2009.

It included 30 patients (20 males and 10 females.) of chronic heart failure who had received standard medical therapy for congestive heart failure.

These patients were divided into two groups:

- The 1st group was the control group which included 15 patients and had received the standard medical therapy.
- The 2nd one was the active group and included 15 patients who received the standard medical therapy and sildenafil 50 mg twice daily for 4 weeks and were followed up for clinical status, PASP using echo study, cardiopulmonary exercise testing.

The ages of the patients ranged from 36 to 72 years, with mean age (54± 18) year, of whom 19 patients were younger than 60 years (64%),11 patients were older than 60 years (36%).

Regarding follow up, 5 (33%) patients of active group, presented with dyspnea grade (11), showed improvement to dyspnea grade (1),unlikely,control group, there was no significant improvement.

In the current study, the mean PASP before giving the sildenafil was 58.4 $\pm$ 2 mmHg and after 4 weeks of regular sildenafil intake was 40,3 $\pm$ 0.5 mmHg. So there was a reduction in mean PASP 18 $\pm$ 1.5 mmgH (average 30%).

In the current study, patients were assessed 4 weeks after sildenafil intake and significant improvement in VO_2 Peak, VE/VCO_2 slope, T-1/2 Vo_2 (min) and T-1/2 VCO_2 (min) from 17.2 $\pm$ 2, 39.1 $\pm$ 6, 2.0 $\pm$ 0.5 and 2.0

± 0.4 to 20 ± 2.5, 42.1 ± 5, 1.9 + 0.7 and 1.8 + 0.2 respectively occur,(p<o.o5)

Concerning cardiac events during follow up period, as regard active group, Decompensated heart failure occurred in 1 patient (6%), Ischemia occurred in 1 patient (6%), Arrhythmias occurred in 2 patients (13%), Hospitalization occurred in 1 patient (6%) while in control group, Decompensated heart failure occurred in 5 patient (33%), Ischemia occurred in 3 patient (20%), Arrhythmias occurred in 4 patients (26%) Hospitalization occurred in 5 patients (33%), there was no CVS occurred in both groups.

Regarding mortality during follow up period, there were no mortality cases in the two groups.

In the current study, cardiac events at follow up were reported more in patients aged more than 60 years (31.1%Vs. 20%. p< 0.05).

Complications at follow up were reported higher for smokers than for nonsmokers (57.3% vs. 20%.P< 0.05). Smoking doubles the incidence of coronary artery disease and increases mortality from coronary disease by 70%.

In the current study cardiac events occurred more in obese patients (45.1% Vs.23.5%, p< 0.05), this could be related to the association between obesity and diabetes and hypertension.

Obesity represent 56% of the study population, of whom 45.1% experienced cardiac events (45.1 % vs. 23.5%, p <0.001) for obese and non obese respectively.

In our study diabetic patients represent 56% of the study population, of whom 42.1% experienced cardiac events (42.1 % vs. 22.5%, p <0.05) for diabetics and non diabetics respectively.

Dyslipidemia represent 66% of the study population, of whom 38.6% experienced cardiac events (38.6 % vs.20.2%, p <0.05) for dyslipidemic and non dyslipidemic respectively.

It recommended that modification of risk factors should be applied to every patient with heart failure, especially diabetes and dyslipidemia as it may improve in- hospital and short term outcome.