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The effects of chronic sildenafil therapy in patients with stable systolic heart failure

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Introduction

Sildenafil inhibits phosphodiesterases type 5, an enzyme that metabolizes cGMP. It is approved for the treatment of erectile dysfunction and pulmonary arterial hypertension. Early clinical studies showed a beneficial effect in endothelial dysfunction and severe systolic heart failure. The aim of this study was to examine the efficacy and tolerability of chronic sildenafil on exercise capacity and quality of life in patients with stable systolic heart failure.

Methods

In this double blind, placebo-controlled study, 31 patients were screened and 23 patients with symptomatic but stable systolic heart failure were randomized to placebo (P) or sildenafil (S). S was given in 20 mg dose three times daily for 6 weeks (W6) and then was increased to 40 mg tds for further 10 weeks (W16). The primary end-point was the change in six minute walk distance (6MWT) from baseline. The International index of erectile function (IIEF), Beck's depression inventory (BDI) and the Minnesota living with heart failure questionnaire (LHFQ) were used to assess the functional outcome.

Results

12 patients were randomized to S and 11 to P. The ejection fraction (mean ± SEM) was S = 30 ± 1.8%; P = 28 ± 2.6%, and 78% of the randomized group were in NYHA II. The 6MWT improved from baseline in both groups but it was not statistically significant between groups (Fig. 1). Two of 12 patients on S and non in P were withdrawn from the study (due to pre-existing atrial fibrillation and

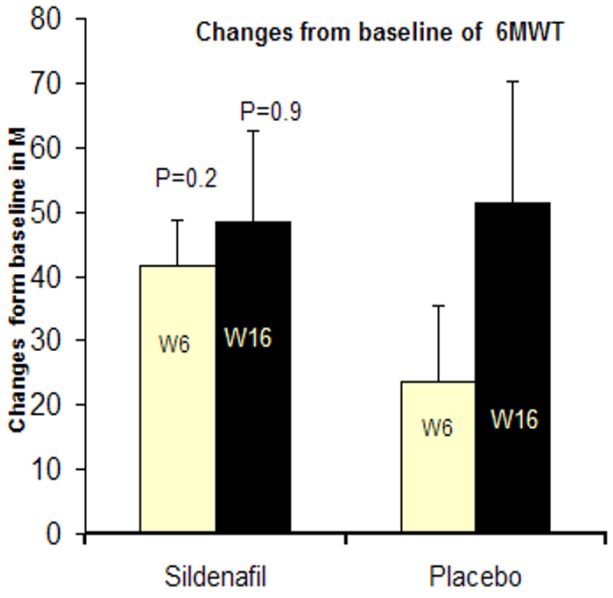

Figure 1
Changes in six minute walk distance.

chest pain). The baseline IIEF score showed evidence of erectile dysfunction in both groups (EF domain, S = 12.6 ± 2.8 P = 10.1 ± 3.5), with significant improvement in only the overall satisfaction domain in the S group at W16 compared to placebo (+2.5 points; P = 0.04). BDI baseline score was normal in both group but there was significant improvement of 3 points in favour of S at W16 (P = 0.03). There were no significant changes in the LHFQ in both groups.

Conclusion

Sildenafil was well tolerated in this group of patients. There was no significant difference in the placebo corrected 6MWT or LHFQ at week 16. However there was improvement in some functional parameters of erectile dysfunction and the Beck depression score, therefore, larger studies are warranted.