

# Sildenafil In Gastrointestinal Dysmotility Disorders

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## Abstract

Irritable bowel syndrome is characterized by disturbances of gastrointestinal functions that occur in everybody from time to time. The abnormal patterns of motor activity have been considered as one of the important factors to be responsible for these symptoms. Sildenafil blocks the degradation of Nitric Oxide (NO) by blocking phosphodiesterase type 5. This increases the levels of NO locally, thereby causing relaxation of smooth muscles in various organs. We studied the effect of sildenafil citrate in IBS patients having erectile dysfunction. In our study of 17 patients of IBS with erectile dysfunction there was improvement noted in their IBS symptoms with 37.5 mg/day dose with significant improvement at the maximum dose for ED symptoms.

## INTRODUCTION

Irritable bowel syndrome is characterized by disturbances of gastrointestinal functions that occur in everybody from time to time in response to dietary indiscretions or psychological upheavals, but present to a greater extent and with greater frequency in patients with IBS<sub>1</sub>. The abnormal patterns of motor activity have been demonstrated in colon<sub>2</sub>, but also in jejunum, ileum<sub>3</sub> & esophagus<sub>4</sub>.

Nitric oxide (NO) is a major inhibitory neurotransmitter in gastrointestinal tract<sub>5</sub>. NO activates soluble guanylate cyclase thereby enhancing the production of guanosine 3', 5'-cyclic mono phosphate (cGMP). Sildenafil blocks the degradation of NO by blocking phosphodiesterase type 5. This results in increased levels of NO, leading to increased level of cGMP & cGMP dependent protein kinase. This causes relaxation of smooth muscles in various organs. We thought of studying this effect of sildenafil citrate and study its effects on IBS patients having colonic dysmotility.

## PATIENTS AND METHODS

A prospective, open label, intention to treat study was planned. 58 married male, patients with irritable bowel disease, diagnosed on the basis of Rome II criterion<sub>6</sub>, were screened. Out of these 18 reported erectile dysfunction (ED) along with symptoms of IBS. These 18 patients were enrolled for the study. They were aged between 20-40 years with mean age of 29.954 years. After explaining the nature of the study 17 patients consented for participation in the study. All the drugs were discontinued for a period of 2 weeks run in period, except fiber supplements, which were

continued throughout the study period. Baseline characteristics were recorded along with the symptoms. The patients were asked to score their symptoms (IBS and ED symptoms) on a scale of 1 to 10 at the beginning of the study and on every follow up, to compare the improvement after treatment. The score of 10 being consistent with maximum discomfort. The patients were started on 12.5 mg of sildenafil citrate once daily at bed time. They were asked to note down improvement in their symptoms and any untoward effects. The patients were followed up at 2 weekly intervals for 6 weeks and the drug dose was increased at every follow up. The maximum dose given was 37.5 mg / day. Compliance was measured by pill count.

## OBSERVATIONS

All the 17 patients were male and were married. They were aged between 20-40 years with mean age of 29.954 years. All of them had erectile dysfunction of variable duration along with symptoms of IBS. The mean duration of the IBS symptoms was 2.8 0.9 years. The mean duration of erectile dysfunction was 9.25 months. The mean score for IBS at the beginning of study was 8.5 1 and for Erectile dysfunction was 7.8 2.1. All of them complied well with the therapy. Only 2 patients reported minor side effects like headache and flushing with 37.5 mg dose and had missed three doses each. All the patients experienced significant improvement in their ED with the score coming down to 1.5 0.5 but none of them reported any significant improvement in any IBS symptoms with the score remaining at 8.0 0.8 at the end of study period.

## DISCUSSION

Sildenafil citrate is known to relax smooth muscle cells in various organs and has been found to be effective in improving gastrointestinal dysmotility. In a recent study the authors have conclusively proven the benefit of sildenafil citrate in reducing the lower oesophageal sphincter pressure and propulsive forces in the body of oesophagus in both healthy subjects and patients with esophageal dysmotility disorders. The beneficial effect was shown to last for up to 8 hours after a single, daily dose of 50 mg <sup>7</sup>.

Our patients of IBS with erectile dysfunction did not report any improvement in their IBS symptoms with 37.5 mg/day dose with significant improvement at the maximum dose for ED symptoms. The reason for this lack of response could be the lower dose used by us in the study group. Since there are no studies available till date regarding the use of sildenafil in IBS and no guidelines are available regarding the minimum / maximum dose of sildenafil to be used in gastrointestinal dysmotility, we gradually hiked up the dose so as to avoid significant side effects.

The concept of sildenafil citrate relaxing smooth muscles of colon to relieve the symptoms in IBS is novel. Further studies in this field with higher doses for longer duration are needed before we write of this drug as being ineffective in

IBS.

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