

Does Yoga Decreases Need of Pharmacotherapy in Elderly Patients of Chronic Constipation?

Tiwari VK¹, Mishra R², Chaudhary S¹, Niharika³

ABSTRACT

Introduction: Constipation is very prevalent and common complaint in elderly population. There are many effective drugs for constipation being used by clinicians. Many patients begin to need these drugs on almost daily basis, which increases overall socioeconomic burden on society. This study primarily aims to search out the potential applicability of yoga practices in chronic constipation which may mimic the natural physiology of body and decrease the overall need of drug.

Material and Methods: 28 Male elderly patients visiting medicine OPD for chronic constipation were included in study. Yoga group (N=14) was offered selected Yogic practices in addition to drugs and control group (N=14) drugs only. Patients kept record of drug intake on paper for 3 months of study. Data was obtained by using CAS score and frequency of drug intake. Data was analysed using t test.

Result: Baseline CAS scores for the yoga and control groups were 11.92 ± 1.59 and 12.07 ± 1.68 respectively. Post yoga CAS score for the yoga and control groups were 3.50 ± 1.40 and 4.14 ± 1.51 respectively. Both groups show almost similar improvement in constipation. Frequency of drug intake in yoga and control groups in first month of yoga was 17.57 ± 2.31 and 19.14 ± 2.38 respectively. In 3rd month of yoga practice frequency of drug intake in yoga and control groups was 11.07 ± 2.16 and 18.35 ± 2.56 , which was highly significant (P Value < 0.001).

Conclusion: Selected yoga practices are effective in decreasing drug requirement in patients of chronic constipation. Yoga practices should be offered in patients of chronic constipation.

Keywords: Chronic constipation, Drug requirement, Elderly population, Yoga

INTRODUCTION

Ageing comes with its own challenges. Almost all organs show age related loss of function in elderly population.¹ Although constipation is not considered as direct consequence of ageing, it is more common in elderly as compared to young population.^{2,3} Constipation may affect up to 60% individuals late in life.¹ Limited mobility, medications, underlying diseases, and rectal sensory motor dysfunction may be contributing factors in increased prevalence of constipation in older adults.^{2,4} Prevalence of chronic constipation is 20% in general population with significant negative impact over quality of life.^{3,5,6} General health, mental health, and social functioning are significantly impaired as compared to healthy individual. This impairment is comparable to other medical conditions like osteoarthritis, rheumatoid arthritis, chronic allergies, and diabetes mellitus.⁷ Constipation is defined variously as infrequent passage of stool, hardness of stool, excessive straining, excessive time spent in toilet, feeling of incomplete bowel evacuation, and unsuccessful defecation.⁸ Constipation may be primary (idiopathic) or secondary to other diseases. Primary constipation has been sub classified into normal transit constipation, slow transit

constipation, and defecatory disorder.^{7,9} Normal transit constipation (functional constipation) is most common type of constipation. In normal transit constipation stool traverse at normal rate through colon and stool frequency is normal but patient complaints constipation. There may be hard stool, bloating, abdominal pain, and discomfort. Slow transit constipation is more common in young women. It has significant impairment in propulsive colonic motor activity.^{7,10} Defecatory disorders are most commonly caused by pelvic floor or anal sphincter dysfunction and they have problem in expelling stool out of rectum.¹⁰ Secondary constipation may be caused by organic diseases (colorectal cancer), endocrine diseases (diabetes mellitus), neurological diseases (hirschsprung disease), drugs (antihypertensive medications), anorectal diseases (anal fissure), diet or lifestyle (inactive lifestyle).¹¹ Secondary causes should be excluded in patients older than 50 years with alarm symptoms (hematochezia, weight loss, anaemia, fecal occult blood loss, family history of colon cancer) and inflammatory bowel disease.^{9,12} Chronic constipation is defined as constipation with onset of ≥ 6 months.^{13,14}

Treatment of constipation includes bulk laxatives (psyllium), osmotic laxative (lactulose), stool softeners (liquid paraffin), and stimulant laxatives (bisacodyl). Reassurance, drinking more water, high fibre diet, and exercise advice work well and used as primary measure in treating constipation. Drugs are only used, if these measures fail and for short periods only. A stimulant \pm a bulking agent is often more effective and cheaper than agents such as lactulose.¹³

Exercise has well established role in relieving constipation but it may not be feasible in some population like elderly, physically handicapped etc.^{14,15} This study primarily focuses whether selected yoga practices can substitute physical exercises and decrease the need of pharmacotherapy.

MATERIAL AND METHODS

This study was conducted at UPRIMS and R (Medical College) Saifai, Etawah between February and June 2014. Elderly patients qualifying Rome's III criterion of constipation¹¹ and consenting on paper were recruited in this study as per inclusion and exclusion criterion.

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Inclusion criterion

- 01- Age between 60-70 years,
- 02- BMI 18.5 – 24.9,
- 03- Constipation for more than 6 months,
- 04- Satisfactory general health condition,
- 05- Blood pressure < 140/ 90 mm Hg.

Exclusion criterion

- 01- Alarm symptoms,
- 02- Use of any drug capable of causing constipation,
- 03- History of cerebrovascular accident, myocardial infarction, arrhythmia, diabetes mellitus, spinal cord diseases, haemorrhoids, hernia, abdominal surgery, peptic ulcer disease, colon cancer in family.
- 04- Practicing yoga in past

All participants (N=28 Male) of the study were informed about goal and procedure of study. This was followed by measurement of severity of constipation using McMillan and Broussard constipation assessment scale (CAS).^{16,17} Yoga group (N=14) was offered selected Yogic practices in addition to drugs (Bisacodyl 10 mg HS + Ispaghula husk 1-2 tsf HS) and control group (N=14) was offered drugs only (Bisacodyl 10 mg HS + Ispaghula husk 1-2 tsf HS).¹³ Yogic practices included moolbandha, uddiyanabandha, mahabandh, pawanmuktasana, and yoganidra.^{18,19} Asana and bandh were performed up to 5 minutes each and yoganidra for 10 minutes daily in morning 1 hours before breakfast. Both groups were informed to take drugs when they need and given with a sheet of paper to record the frequency of drug intake. They were kept in follow up in first, second, and fourth week of first month and monthly thereafter. At the end of 3 months all participants were assessed again using McMillan and Broussard constipation assessment scale.^{16,17}

McMillan and Broussard constipation assessment scale is well validated and widely used scale. Each item in the constipation assessment scale is graded as no problem (0), some problem (1) or severe problem (2). The symptoms include abdominal distension/ bloating, change in amount of gas passed rectally, less frequent bowel movements, oozing liquid stools, rectal fullness/pressure, rectal pain with bowel movement, small volume of stool, and unable to pass stools. Total score is generated by adding the individual scores. Thus maximum score is sixteen and minimum zero. In constipation assessment scale more score is associated with severe constipation. It is rated based on recall of symptoms over past one week.^{16,17}

STATISTICAL ANALYSIS

Data was obtained as mean ± SD of McMillan and Broussard constipation assessment scale and frequency of drug intake in the yoga and control groups. Data was compared before and after yogic practices and analysed using SPSS V-20. Data related to yoga and control groups were compared using t-test and p value < 0.05 was considered statistically significant. Tables were prepared using Microsoft office 2010 and figures were prepared using GraphPad Prism 6.

RESULTS

Table-1 and figure-1 summarizes the pre and post yoga data of constipation assessment scale score (CAS score) in yoga (n=14) and control (n=14) groups. Baseline CAS scores for the yoga and

control groups were 11.92 ± 1.59 and 12.07 ± 1.68 respectively. Unpaired t test analysis of two data was statistically insignificant (P Value = 0.708). Post yoga CAS score for the yoga and control groups were 3.50 ± 1.40 and 4.14 ± 1.51 respectively. The observed differences were not statistically significant (P Value 0.863). Paired t test analysis of yoga group baseline and post yoga CAS score shows highly significant difference (P Value < 0.001), similarly there was highly significant difference (P Value < 0.001) between pre and post yoga CAS scores in control group.

Table-2 and figure-2 summarizes frequency of drug intake in yoga (n=14) and control (n=14) groups in first and third month of study. Frequency of drug intake in yoga and control group in first month of yoga was 17.57 ± 2.31 and 19.14 ± 2.38 respectively. Unpaired t test analysis of two data was statistically insignificant (P Value = 0.08). In 3rd month of yoga practice frequency of drug intake in yoga and control group was 11.07 ± 2.16 and 18.35 ± 2.56 respectively, the observed difference was highly significant (P Value < 0.001). Paired t test analysis of frequency of drug intake in yoga group showed highly significant difference (P Value < 0.001), while that of control group was insignificant (P Value = 0.431).

DISCUSSION

Several studies finding effect of different grades of exercises on constipation are widely available but not with yoga. There is some controversy whether exercise decreases constipation or not but there are plenty of studies in favour.^{20,21} During exercise blood is primarily shunted to the exercising muscles and skin at the expense of the gastrointestinal tract.²² This shunting of blood causes relative decrease in oxygen supply to GIT resulting in activation of local tissue blood flow control mechanism. Local tissue blood flow control mechanism acts in two phases: acute control and long term control. Increased carbon dioxide, adenosine, adenosine phosphate compounds,

| Groups | Constipation Assessment Scale (CAS) Score | |
|---------------|---|----------------------|
| | Pre Yoga (Mean± SD) | Post Yoga (Mean± SD) |
| Yoga Group | 11.92 ± 1.59 | 3.50 ± 1.40 |
| Control Group | 12.07 ± 1.68 | 4.14 ± 1.51 |

Table-1: CAS score in yoga and control group

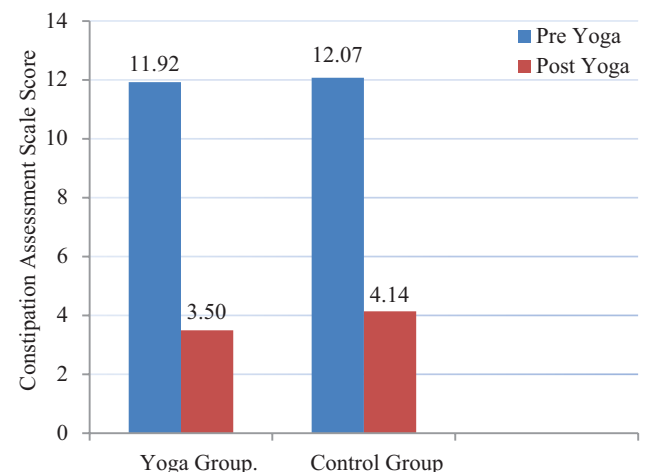


Figure-1: CAS score in yoga and control group

| Groups | Frequency of drug intake | |
|---------------|--|--|
| | 1 st month of Yoga (Mean± SD) | 3 rd month of Yoga (Mean± SD) |
| Yoga Group | 17.57 ± 2.31 | 11.07 ± 2.16 |
| Control Group | 19.14 ± 2.38 | 18.35 ± 2.56 |

Table-2: Frequency of drug intake in yoga and control group

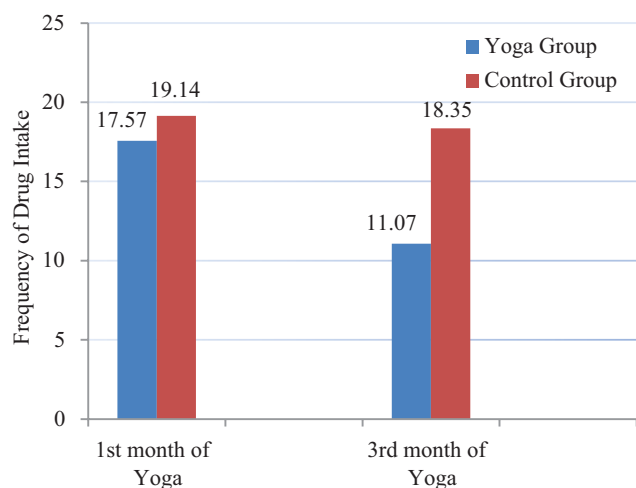


Figure-2: Frequency of drug intake in yoga and control group

histamine, potassium ion, and hydrogen ions are some of proposed vasodilators acutely regulating local tissue blood flow. On long term there is increase in vascularity of tissue by process of angiogenesis to meet the metabolic demand of tissue. This increased blood supply will lead to increased nutrition and thereby strengthening of gastrointestinal muscle.^{16,23,24} In addition to above effects, exercise influences the level of various gastrointestinal hormones affecting bowel movement and defecation. There is also increased production of endorphin which decreases constipation.²⁵

Action of pelvic floor muscle influences act of defecation. Moolbandha exercises pelvic floor muscles, which influences the act of defecation and thereby improves constipation.^{26,27} Uddiyanabandha, pawanmuktasana massage the abdominal viscera. Mahabandh is combination of moolbandha and uddiyanabandha.^{18,19} There is squeezing of abdominal viscera in uddiyanabandha, pawanmuktasana, and mahabandh resulting in reduced gastrointestinal blood flow, leading to release of vasodilators. On releasing the abdominal wall in these yoga practices, there will be increased blood flow under effect of vasodilators; thereby increased nutrition and strengthening of gastrointestinal tissue. On long term practice of these yoga, there may be increased vascularity of gastrointestinal tract and associated glands to meet the metabolic demand. This sequential ischemia and high blood flow may also have stimulating effect on smooth muscles and pacemaker cells of GIT. Similarly there may be biochemical alteration in yoga practices affecting bowel motility and constipation as in exercise. Yoganidra act at CNS level and may have effect over brain gut axis.

Strength

This study was conducted with only male elderly patients so clinical benefits in the given population may be predicted with better probability. Age and weight limits of patients were narrow so associated ageing and physiological changes were almost similar. No patient practicing yoga in past was included

to remove associated biasing.

Limitations

Females were not part of this study and sample size was small. Duration of study was short, and population of only western UP, India was included in study.

Future recommendations

This study should be conducted with bigger sample size, including female patients for longer duration of time. Biochemical markers should be studied which may direct us about more quantitative impact of yoga practice in constipation.

CONCLUSION

Yoga is safe and effective way to decrease the need of pharmacotherapy in elderly patients of chronic constipation. Yoga should be offered to all patients of chronic constipation who have no alarm symptoms and using drugs frequently. Yoga practices should be offered along with pharmacotherapy and drugs should be tapered slowly. Such a simple, affordable and easy yoga practices may not only decrease cost of treatment but also burden of disease on healthcare system. Yoga may play an important role in providing better health and quality of life to our senior citizens.

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