

A Pilot Study on Impact of Naturopathic Treatment Protocol on Abdominal Obesity Patients

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Abstract: Obesity is one of the most common and most neglected public health problems in both developed as well as developing countries. Abdominal obesity is strongly associated with other metabolic disorders like diabetes, hypertension, and cardiovascular diseases and has higher rates of mortality and morbidity compared to non obese individuals. This pilot study is an attempt to elicit the impact of six days Naturopathic treatment protocol on abdominal obesity. Twenty participants with Waist Circumference cut-off point with 90cms for men and 80cms for women, and completed the full 6 days of treatment protocol, were taken for final analysis. Height, weight and waist circumference were recorded before and after the interventions. Statistically significant average reduction in weight of 2.52 Kilograms and 1.95 Kilograms for male and female respectively was observed. WC primary parameter used for this study shows a significant change of 5.05cms in male and 4.25cms in female participants respectively. Significant changes in BMI also observed. Further studies with larger sample size are indicated to establish mechanism of action and impact of naturopathic treatments for managing abdominal obesity.

Keywords: Abdominal obesity, obesity, Naturopathy, metabolic disorders, alternative medicine

I. Introduction

Obesity is one of the most common and most neglected public health problems in both developed as well as developing countries¹. Individuals with obesity have higher rates of mortality and morbidity compared to non obese individuals^{2, 3}. Industrialization and urbanization lead to increased standard of living and it also contributed to increased prevalence of obesity. Studies from different parts of India have provided evidence of the rising prevalence of obesity ranged from 10 to 50 per cent^{4, 5 & 6}. Epidemiological surveys use body mass index (BMI) as an indicator of 'generalized' obesity and waist circumference (WC) or waist-to-hip ratio (WHR) as a measure of 'central' or 'abdominal' obesity⁶. Obesity is strongly associated with other metabolic disorders like diabetes, hypertension, and cardiovascular diseases⁷. In prevalence study done in four states of India, if translated to whole country the pre prevalence of abdominal obesity would be 153 million. Female gender, hypertension, diabetes, higher SES, physical inactivity and urban residence were significantly associated with generalized, abdominal and combined obesity⁷.

The abdominal obesity is also termed as central obesity, abdominal adiposity, and predictors of obesity. Abdominal obesity is one important class of obesity where the extra fat has built up around abdomen to an extent where it likely to create a negative impact on health. Abdominal obesity creates high risk in the individual to get cardiovascular diseases, hypertension, diabetes mellitus, arterial diseases, etc.⁸ there are different anthropometric measures available to confirm abdominal obesity like Body mass index (BMI), waist circumference (WC) and waist –hip ratio (WHR). Among these, the WC found to be the most important indices for the abdominal obesity. WC was also found to be more accurate, simple, and effective predictor in case of type 2 diabetes mellitus than other tools like BMI & WHR.⁹ There is varied spectrum of treatments available for obesity like diet, exercise, Yoga, drugs food supplements and surgical intervention. Naturopathy is a system of health care and called as science of healthy living. It is a drugless system of healing based on well founded philosophy¹⁰. Lack of specific guidelines, improperly designed protocols, poor research methodologies and lack of trained man power are some of the limitations which act as the main set back in developing naturopathy system as the scientific ones¹⁰. The main modalities of Naturopathy includes naturopathy diet therapy, fasting therapy, hydrotherapy, Massage therapy, Mud therapy, Chromo therapy, Air therapy which are applied in various forms and with equipment for the treatment purpose¹¹. In this study we used combination of Naturopathy treatment protocol for managing abdominal obesity.

II. Materials And Method

The study was carried out in Outpatient department of National Institute of Naturopathy (NIN), Pune. Patients visiting NIN's outpatient department were enrolled for this study. The patients were recruited based on their willingness to participate in the study and also those who are fulfilling the inclusion criteria of WHO & International Diabetes Federation guidelines, the Asian – Indian ethnic group with Waist Circumference cut-off

point for men 90 cm and for women 80 cm^{12, 13}. The measurement of Waist Circumference was taken between the lower margin of the last palpable rib in mid-auxiliary line and the midpoint between the top of the iliac crest. Weight of the patient in Kilograms was also measured using a standard weighing machine. For reliability of measurements same measuring tape and weighing machine was used to measure pre and post intervention, and the measurements were taken by the same person on first day and last day of intervention. Initially 24 participants (13 male and 11 female) were recruited for the study, participants who undergone the complete 6 days of intervention were included for the final analysis. Potential risks and benefits were explained to the participants and written informed consent was obtained from the participants. The study was approved by IEC, of NIN after reviewing the protocol.

Intervention: Naturopathy treatment protocol for abdominal obesity was designed as given in the table 1

III. Data Analysis

Paired-samples t-test was computed to test the pre and post intervention changes, and statistical significance was set at $p\text{-value} < 0.05$, using the Statistical Package for the Social Sciences version 20 for Windows (SPSS)

IV. Results

The study included 20 participants for final analysis out of 24; four patients missed the treatment protocol for six continuous days due to their personal reasons. The mean ages of the participants were 47.40 years \pm 13.38 year, (male= 48.9 \pm 12.8, female= 45.9 \pm 14.3). Height, weight, waist circumference were measured and BMI was calculated using standard formula $\text{weight (kg)} / [\text{height (m)}]^2$. Both male and female participants reduced their weight after treatments, the average weight reduced for male participants is 2.52 Kilograms and for female participants it is 1.95 Kilograms. Waist circumference which is the primary parameter used for this study to find the impact of Naturopathy intervention on abdominal obesity, shows that there is a significant effect on WC with the change of 5.05cms in male and 4.25cms in female participants, Table 2 shows that there is a statistically significant changes had seen in before and after treatment in all the parameters. With this short term intervention there is a significant change in BMI among both groups of participants with mean change of 0.88 for males and 0.99 for females.

V. Discussion

Digestive system is one of the main eliminative organs, hence giving neutral enema on the 1st day as the 1st treatment in the protocol helps to cleanse the bowel and relieves the congestion in the colon and maintains colon hygiene. It helps to clean the accumulated fecal matter from the rectum. This is a safest therapy for bowel cleansing. It also helps in improving the peristaltic movement of the bowels and thus relieves constipation. In a study conducted among Iranian women, there was clear association between obesity and constipation¹⁴, in another study the statistical analysis showed that constipation frequency is 8.3% in obese patients and 1.5% in normal-weighting, according to weekly bowel actions criterion: the difference is statistically significant (p less than 0.001)¹⁵. Separate study on abdominal obesity, shows that abdominal subcutaneous fat and waist circumference got significantly reduced in experimental group after Aromatherapy massage compared to control group¹⁶. In our protocol Massage to abdomen and hip area were given to stimulate the peristaltic movement of the small intestine and to tone up the abdominal muscles and walls which create mechanical mobilization and elimination of unwanted fat from the abdominal region.

Cold application capable of inducing shivering has shown to encourage production of Irisin, an adipokine that facilitates white adipose tissue to mimic functions similar to brown adipose tissue and enhance metabolism¹⁷. Though the exact effect of local mud pack and cold abdominal pack on adiposities is not so evident, it had marked effects on skin microcirculation, with a very large blood flow increase and stimulation of vasomotion¹⁸. Studies shows that variations in the vascularisation of different types of adipose tissue and between white adipose tissue depots likely contribute to the metabolic dysfunction, or lack thereof, associated with adipose expansion and obesity¹⁹. In Naturopathy the cold moisture mud packs relaxes the skin pores, relieves inner congestion, draws the blood to the skin surface, promotes heat radiation and also helps in elimination of waste matter. This also mobilizes the extra fat in the abdominal region and helps in eliminating it and thus good in administering for obesity. Cold hip bath stimulates the eliminative organs to function properly and is good for obesity. The excess fat accumulation at the hip and pelvic regions will be eliminated easily together with other naturopathy treatment modalities. Hot immersion bath is one of the valuable treatment in case of overweight and obesity²⁰. Steam bath induces perspiration in a natural way. Steam bath significantly reduces the total body weight in high muscle mass male athletes²¹.

In our study all the participants undergone under steam bath for a period of 10-15 minutes and had a beneficial effect in reducing weight. Combined Naturopathic treatments with the designed protocol for duration of 6 days had a significant impact on reducing the waist circumference, weight and BMI of the patients.

Further studies were indicated to study changes in the parameters with long term Naturopathic interventions and its changes among the patients and also different combination of naturopathic treatments can be studied for its impact on abdominal obesity.

Parameters	Sex	Before	After	Mean difference	t value	P value
Weight(kgs)	Male	82.63±14.08	80.10±13.35	2.52	7.32	.001
	Female	76.45±21.33	74.50±20.95	1.95	9.68	.001
Waist circumference(cms)	Male	103.90±7.83	98.45±7.90	5.05	8.15	.001
	Female	111.47±14.3	107.21±14.63	4.25	4.99	.001
BMI	Male	28.98±3.98	28.10±3.74	.88	7.16	.001
	Female	32.12±7.83	31.13±7.74	.99	8.19	.001

VI. Limitation

This study was conducted with patients coming for treatment in NIN and the participation is purely on voluntary basis, and the treatment regime were designed from the pre-fixed package of NIN, hence having a control group was not feasible. The patients also advised to follow a general naturopathy diet chart given to all the patients, the impact of dietary modification was not observed in this study. The present study Sample size is also very less which is also another limitation. The results are based on the short term intervention of Naturopathic treatments and with a fixed protocol, different protocols can be tested for its impact on abdominal obesity.

Days	Protocol	Procedure
Day 1	Neutral water enema + massage to abdomen and hips + Cold hip bath	Neutral water enema: 750 ml to 1 litre of Neutral water with 32-38°C Massage to Abdomen and Hips: + 15-20 minutes of Swedish massage to abdomen and hip region Cold hip bat: The water temperature was 12-18°C, with duration of the bath between 10 - 15 minutes. Patient should rub the abdomen briskly in clockwise direction with a moderately coarse wet cloth. The leg, feet and upper part of the body should remain completely dry during and after bath.
Day 2	Mud pack on abdomen and eyes + massage to abdomen and hips + Steam bath	Mud pack on abdomen and eyes: Processed natural black soil made into paste by adding water is packed in the cotton cloth with thickness if 1 inch is kept over eyes and abdomen region for duration of 30 minutes Stem Bath: 10-15 minutes
Day 3	Mud pack on abdomen and eyes + massage to abdomen and hips + Hot immersion bath	Hot immersion bath: Administered in a bath tub filled with hot water, at a temperature from 36.60°C -40.0°C for 10 to 12 minutes with necessary precautions.
Day 4	Cold abdominal pack + massage to abdomen and hips + Cold hip bath	Cold abdominal pack: Cotton cloth immersed in cold water with temperature of 12-18°C wrapped around the abdomen followed by wrapping the woollen cloth for the duration of 45-60 minutes.
Day 5	Cold abdominal pack + massage to abdomen and hips + Steam bath	Procedures as mentioned above
Day 6	Mud pack on abdomen and eyes + massage to abdomen and hips + Hot immersion bath	Procedures as mentioned above

VII. Conclusion

The findings of the study indicate that the designed Naturopathic treatment protocol can help in reducing weight, reduce body mass index and decreases the waist circumference significantly among both men and women, thereby reducing the possibility of complications related abdominal obesity. Further large scale studies are warranted to derive more conclusive results.

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