

AN APPROACH TO MANAGING LEUCORRHOEA BY LIFE STYLE MODIFICATION AND HOME REMEDIES

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ABSTRACT ■ Present study was conducted on the married rural women of Paschim Medinipur District with the age group of 18 to 45 years old who were suffering from leucorrhoea. Impact of modification of life style such as sanitation, cleanliness in pre and post coital time etc. and drinking of decoction of tea-fenugreek seed and ladies finger twice a day for fifteen days separately was noticed. It was observed that there was an improvement in their leucorrhoeal episode following the above modification. The group supplied with ladies finger had shown a greater percentage of improvement with respect to other groups.

Key words: Leucorrhoea; Tea; Fenugreek seed; Ladies finger; Antifungal.

INTRODUCTION

Gynaecological disorders have a substantial impact on female reproductive ability, mental health, ability to perform physical activities (Kaur et al., 2013). Leucorrhoea and unusual uterine bleeding are very common and significant clinical manifestations seen by the gynecologist in their daily practice and these complaints are sufficient to create distress in women (Tewiri et al., 2001). It is associated with bodily complaints like weakness, tiredness, exhaustion, multiple aches, and

multiple somatic complaints (Chaturvedi, 1993). The common causes of leucorrhoea are excessive coitus, abortions, high parity, lower socioeconomic status, poor hygiene, faulty dietary habits, excessive work load etc (Tewiri et al., 2001; Gupta et al., 2014; Kulkarni & Durge, 2005). In the physiological leucorrhoea, the odorless, slimy, slightly sticky, clear or pale milky coloured vaginal discharge is secreted from the uterus and upper part of the vagina. Secretion from the upper part reabsorbed in the lower parts of

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the vagina to flush out bacteria and other tiny organisms to prevent infection. Very often it becomes offensive in odour and whitish to yellow or light green in colour (Waghmare, 2014). The pathogens like *Trichomonas vaginalis*, *Neisseria gonorrhoeae*, *Candida albicans* are exclusively present in leucorrhoea. Other potential causes of leucorrhoea are *Ureaplasma urealyticum*, *Actinomyces*, *Chlamydia trachomatis*, Candida-like organisms (CLO) and non-group B streptococci (Chaudhuri et al., 1998).

Herbal medicines at rural level, where there is a lack of modern medical facilities are used as the alternative (Das et al., 2015; Das, Sinha and Das, 2015). Moreover an increasing trend of herbal medicines in the treatment of chronic diseases is observed in both rural and urban areas. Very often women are facing mental barrier to disclose this type of untoward sexual infections to the doctors and hence they depend on the some remedies and herbal medication through local practitioners (Das et al., 2013).

Considering this above problem, this study is intended to describe an easily acceptable cost effective remedial measure through few life style modifications and home remedies to overcome leucorrhoeic disorder.

METHODOLOGY

Study area

The study design was among the female in the rural areas of PaschimMedinipur district during September 2014 to January 2015.

Study population

The females of the reproductive age suffering from leucorrhoea were included in this study. Thirty married women agreed to be the participants of this study. The confidentiality of their information has maintained in the study. Their written consent was taken before initiation of study. Institutional ethical

permission was obtained prior to the study. The researchers included all the participants who fulfilled the following inclusion criteria:

- Age between 18 and 45 years married female
- Non-pregnant and non-lactating female with a past history of chronic illnesses (i.e. brain disorder, cardiovascular diseases, diabetes) were excluded from this study.

The participants suffering from leucorrhoea were divided into 3 groups, Group I, Group II and Group III, consisting of equal number of individuals.

Group I: The participants were advised to give importance on life style modification such as drinking plenty of water at least 2-3 liters and also advised to wash off their external genitalia after every stool and urination and also before and after coitus and advised to report after fifteen days.

Group II: The participants were suggested to take ½ cup of tea (*Camellia sinensis* L.) with one-tablespoon fenugreek (*Trigonella foenum-graecum* Linn.) seeds and water boiled for 10-15 minutes. This preparation was consumed by the individuals twice daily before meal for fifteen days

Group III: Individuals of this group were suggested to take decoction of lady's finger, which was prepared by 100g fresh lady's finger (*Abelmoschus esculentus*(L) Moench) boiling with ½ liter water for 15 minutes, two to three times daily for a period of fifteen days

Socio-economic status

The score of socio-economic status was determined as per revised Kuppuswami's socioeconomic status scale (Mishra and Singh 2003).

Anthropometric measurements

All anthropometric measurements were made by trained investigators using the standard techniques (Lohman et al. 1988). All the

equipments were checked regularly to minimize random errors. Height was measured to the nearest 0.1 cm using Martin's anthropometer. Body weight of lightly-clothed participants were recorded to the nearest 0.5 kg on a weighing scale (Doctor Beliram and Sons, New Delhi, India). The weighing scale was set to zero before every measurement. Errors of measurements were computed and they were found to be within acceptable limits (Ulijaszek and Kerr 1999).

Body mass index (BMI) were computed using the following standard equations (Park 2005)

$$\text{BMI (kg/m}^2\text{)} = \text{Weight (kg)} / \text{height}^2 \text{ (m}^2\text{)}$$

Nutritional status was evaluated using World Health Organization guidelines (WHO 1995). The following cut-off points were used: Chronic energy deficiency (CED) Grade III: BMI < 16.0; CED Grade II: BMI = 16.0 – 16.9; CED Grade I: BMI < 17.0–18.4; Normal: BMI = 18.5 – 24.9; Overweight: BMI > 25.0.

Blood pressure was measured by Sphygmomanometer and pulse rate was measured by standard technique (Park 2005).

RESULT & DISCUSSION

The study population consists of thirty women suffering from leucorrhoea. Table 1 represents the some socio-demographic characteristics of the study women. It was noted that majority of the patients were belonging to the age group 25 to 34 years (50.00%) followed by above 34 years (30.00%) and less than 25 years (20.00%). The mean age (of the female in this study) was 29.27 ± 9.67 years, ranging from 15 to 45 years. Socioeconomic status of the female participants indicated that the participants belong to three socioeconomic groups viz. middle class (60.00%), lower middle class (23.33%) and lower class (16.67%) as per revised Kuppusswami scale. The mean of weight, height and BMI of the female in the study

Table 1: Socio-demographic profile of the study group

Variables	N (%)
Age group	
<25 years	6 (20.00)
25 – 34 years	15 (50.00)
> 34 years	9 (30.00)
Socio-economic status	
Middle class	18 (60.00)
Low middle class	7 (23.33)
Lower class	5 (16.67)
Nutritional status	
CED III	1 (3.33)
CED II	6 (19.98)
CED I	14 (46.67)
Underweight	21 (70.00)
Normal	9 (30.00)

group were 42.10 ± 5.16 kg, 152.53 ± 3.49 cm and 18.07 ± 1.95 kg/m² respectively. BMI of the studied women ranged between 12.84 – 22.03 kg/m². This study indicated a wide spread malnutrition till persists in this area as seventy per cent of the female were undernourished. The cause of such high prevalence of undernutrition may not be correlated with the socioeconomic status of the participants as there was no association observed between socioeconomic status and anthropometric parameters (Table 2). So, there may be some other factors of poor nutritional status of the women of middle class or lower middle class group.

The associated morbidities noticed among the participants were constipation (36.67%), headache (36.67%), anorexia (53.33%), weakness (76.67%), muscle joint pain (73.33%), anaemia (83.33%), purities vulvae (36.67%), mental irritability (46.67%) etc. In this study, there was no significant relationship was observed between socioeconomic status and common morbidities (Table 3). Similarly the

Table 2: Effects of socioeconomic status on some biological variables among the female participants suffering from leucorrhoea (data in the table represent mean \pm SD).

Variables	Socioeconomic status			ANOVA
	Middle class	Low middle class	Lower class	
	N=18	N=7	N=5	
Weight (kg)	41.89 \pm 6.24	41.86 \pm 3.89	43.20 \pm 1.79	F=0.128; P>0.05
Height (cm)	152.67 \pm 3.46	151.29 \pm 2.87	153.80 \pm 4.49	F=0.777; P>0.05
BMI (kg/m ²)	17.92 \pm 2.27	18.29 \pm 1.75	18.28 \pm 1.02	F=0.121; P>0.05
Pulse rate (beats/min)	68.89 \pm 4.30	68.57 \pm 5.50	66.40 \pm 2.61	F=0.633; P>0.05
SBP (mm Hg)	106.22 \pm 9.30	105.71 \pm 17.18	107.20 \pm 11.10	F=0.024; P>0.05
DBP (mm Hg)	69.89 \pm 5.29	70.00 \pm 5.77	70.80 \pm 5.40	F=0.056; P>0.05
Haemoglobin (g/dl)	10.58 \pm 0.75	10.50 \pm 0.76	11.10 \pm 0.82	F=1.074; P>0.05

Table 3: Association between socioeconomic status and different health problems of the female participants suffering from leucorrhoea

Common morbidities	Status	N	Socio economic status			χ^2	P
			Middle class N=18	Low middle class N=7	Lower class N=5		
Constipation and indigestion	Present	11	6	4	1	1.948	0.378
	Absent	19	12	3	4		
Headache	Present	11	9	2	0	4.470	0.107
	Absent	19	9	5	5		
Anorexia	Present	16	8	5	3	1.582	0.453
	Absent	14	10	2	2		
Weakness	Present	23	14	5	4	0.151	0.927
	Absent	7	4	2	1		
Muscle joint pain	Present	22	12	6	4	1.071	0.585
	Absent	8	6	1	1		
Anemia	Present	25	16	6	3	2.389	0.303
	Absent	5	2	1	2		
Purities vulvae	Present	11	5	4	2	1.900	0.387
	Absent	19	13	3	3		
Mental Irritability	Present	14	8	4	2	0.434	0.805
	Absent	16	10	3	3		

sanitation status failed to show any association with the anthropometric indices such as weight, height, BMI etc. of the participants (Table 4).

The result showed that 70% of the participants

were undernourished where 3.33%, 19.98% and 46.67% were suffering from CED III, CED II and CED I respectively. The study could not find relationship between nutritional status of the participants and their morbidities (Table

Table 4: Correlation between some biological variables of the female suffering from leucorrhic disorder

Variables	Age (years)	Weight (kg)	Height (cm)	BMI (kg/m ²)	Pulse (beats/min)	SBP (mm Hg)	DBP (mm Hg)	Haemoglobin (g/dl)	Sanitation status
Age (years)	1	0.231	0.204	0.184	0.035	0.043	-0.173	0.149	-0.256
Weight (kg)	0.231	1	0.525 [†]	0.932 [™]	0.097	-0.053	-0.138	0.342	-0.184
Height (cm)	0.204	0.525 [†]	1	0.184	0.245	0.233	-0.081	0.24	0.067
BMI (kg/m ²)	0.184	0.932 [™]	0.184	1	0.008	-0.153	-0.111	0.297	-0.255
Pulse (beats/min)	0.035	0.097	0.245	0.008	1	.820 [™]	.556 [™]	0.338	0.444 [†]
SBP (mm Hg)	0.043	-0.053	0.233	-0.153	0.820 [™]	1	.677 [™]	0.364 [†]	0.352
DBP (mm Hg)	-0.173	-0.138	-0.081	-0.111	0.556 [™]	.677 [™]	1	0.256	0.093
Haemoglobin (g/dl)	0.149	0.342	0.240	0.297	0.338	.364 [†]	0.256	1	-0.101
Sanitation status	-0.256	-0.184	0.067	-0.255	0.444 [†]	0.352	0.093	-0.101	1

Statistical significance at *P<0.05; **P<0.01; ***P<0.001

3).

After analyzing the cases thoroughly, the experimental results showed that out of 30 patients, 3 patients of group I, 4 patients of group II, 7 patients of group III responded with relief in leucorrhic discharge but 16 patients

from three groups reported with no such relief (Fig 1). This study revealed that the ladies finger had the powerful remedial effect on leucorrhoea as its remedial effect is not only 70% but also it may be used as a potent therapeutic measure against leucorrhoea

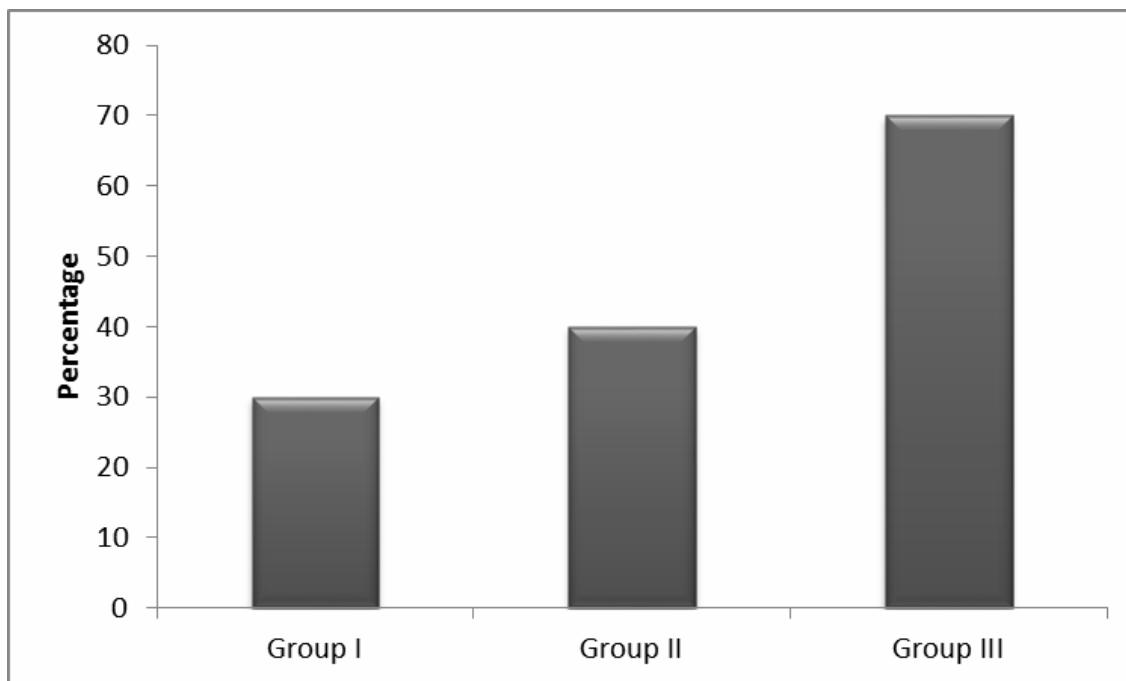


Fig. 1. Recovery rate of the three types of treatments. Gr I: Lifestyle modification; Gr II: Tea (*Camellia sinensis* L.) and Fenugreek (*Trigonella foenum-graecum* Linn.) treated and Gr III: Lady's finger (*Abelmoschus esculentus*(L) Moench) treated.

Table 5: Recovery rate of the three types of treatments for the patients suffering from leucorrhoea according to its chronic stages

Duration of suffering	Gr. I			Gr. II			Gr. III		
	No.	Cured	Cure rate	No.	Cured	Cure rate	No.	Cured	Cure rate
<2 years	4	2	50.00	4	2	50.00	2	2	100.00
2 to 4 years	4	1	25.00	3	1	33.33	4	3	75.00
>4 years	2	0	0.00	3	1	33.33	4	2	50.00

(Table 5) though extensive research is required in this area.

The practice of good genital hygiene such as frequency of coitus, urinating after coitus, washing genitals pre-coitus, frequent replacing of underwear and washing genitals from front to back may be recovered the women from such gynecological disorders including urinary tract infection. Women who usually urinated within 15 minutes of intercourse had a lower likelihood of developing these disorders than women who did not urinate afterwards. Using the above intervention with proper genital hygiene the Group I participants recovered from the leucorrhoea in 30% cases. This indicated that fluid intake has a positive role in the prevention of the diseases in the genital and urinary tract.

Toda et al. (1991) found that extracts of tea suppressed the growth of many microorganisms. Tea polyphenols inhibits biofilm formation and proteasome inactivation in *Candida albicans* (Evensen and Braun, 2009). In West Bengal *Candida albicans* is a major contributor of leucorrhoeal disorders. The recovery of this disorder in our study may be supported by the study of Evensen and Braun (2009). Fenugreek is also a rich source of phytochemicals and is usually been used as a food, forage and medicinal plant (Raghuram et al., 1994). The active principles of many drugs found in plants are secondary metabolites. Although there is a low rate of recovery, the antimicrobial activities of fenugreek may elicit an

improvement from leucorrhic episode in this study (Lai and Roy, 2004). Fenugreek seeds comprises of lysine and L-tryptophan rich proteins, mucilaginous fibre and other rare chemical constituents such as saponins, coumarin, fenugreekine, nicotinic acid, saponin, phytic acid, scopoletin and trigonelline, which may be thought to be accounted for many of its presumed healing effects (Michael and Kumawat, 2003).

Since the leucorrhic disorders are predominantly caused by *Trichomonas vaginalis*, *Neisseria gonorrhoeae*, *Candida albicans*, it is important to develop easily acceptable therapeutic strategy against such fungal infection by food or nutraceuticals. In this regard, our study revealed a very successful recovery rate from leucorrhoeal discharge by the consumption of *Abelmoschus esculentus* L. (Ladies finger) and which is in agreement with the findings of the other investigators where they found gold nanoparticles using seed aqueous extract of *Abelmoschus esculentus* have promising antifungal activity (Jayaseelana et al., 2013) and that may be due to the presence of the phytochemicals rich in flavonoid glycosides in the ladies finger (Liao et al., 2012). The exact mechanism how this herbal decoction improves leucorrhoea is yet to be explored but it may be postulated that these herbal intervention may reduce the growth and multiplication of the microorganism responsible for this health hazard.

However, from this study, we may conclude that the rural female suffering from

leucorrhoea with low economic condition may opt for such easily acceptable nutritional supplementary strategy with green tea, fenugreek and ladies finger along with life style modification to combat against the disease although extensive study is needed in near future to draw a concrete inference in this line.

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