Efficacy of Virechana (therapeutic purgation) followed by Go-Ghrita (cow ghee) in the management of Ksheena Shukra (oligozoospermia): A clinical study

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Abstract

Background: Fertility is affected by many different cultural, environmental and socioeconomic factors, especially in developing countries where poverty and infections are common place. Infertility is the inability of a sexually active, noncontracepting couple to achieve spontaneous pregnancy in 1 year. Shodhana (biopurificatory) procedures are indicated before the administration of Vajikarana (aphrodisiac) drugs, especially Virechana Karma (therapeutic purgation) is indicated in the cases of vitiation of Shukra (seminal parameters). Go-Ghrita (cow ghee) is a rejuvenator and aphrodisiac. Maximum preparations for the diseases of Shukra and reproductive system are prepared in Go-Ghrita and reported to be useful in the management of infertility. Aim: The present clinical study aimed to evaluate the clinical efficacy of Go-Ghrita administered after performing Virechana Karma in the management of Ksheena Shukra (oligozoospermia). Materials and Methods: Eligible male participants from the age group of 21 to 40 years, with sperm count of <15 million/ml, received cow ghee for 8 weeks in the dose of 10 g, after undergoing Virechana Karma with Haritakyadi Yoga. Percentage changes in the semen parameters and associated symptoms of Ksheena Shukra in comparison to baseline were the primary outcomes measured. Results: Go-Ghrita administered after Virechana provided 80.92% increase in total sperm count, 41.78% increase in sperm motility, 12.58% increase in normal form of sperm, 41.69% decrease in abnormal forms, and increase in semen volume by 45.22%. Conclusion: Overall assessment of the therapy showed that administration of cow ghee after performing Virechana provided statistically highly significant improvement on seminal parameters.

Keywords: Go-Ghrita, Haritakyadi Yoga, Ksheena Shukra, oligozoospermia, Virechana

Introduction

Infertility as a medical and social problem has acquired global dimension, and its incidence is supposed to be increasing day by day every decade.¹ Nature is always doing better for all living being; but due to the present lifestyle, there has been a drastic change in day-to-day activities including lifestyle, food habits, sexual life, environmental pollution, industrial and occupational hazards and these changes have adverse effect on Shukra Dhatu which leads to infertility. Infertility affects 10% of couples, usually as a result of asymptomatic infection. Poverty, nutrition and pollution are problems that must also be tackled. One such factor is the role of low sperm count in male infertility and its management. The most cost-effective approach to solve the infertility problems is prevention and education. Infertility is defined as inability to conceive after a year of sexual intercourse without the use of contraceptives. A male contributory factor is involved in approximately half of these cases,² but most of the causes for reduced semen quality and other disturbances of male reproductive function are unknown.³ Oligozoospermia is termed as Ksheena Shukra in Ayurvedic text which indicates low volume and less number of spermatozoa in seminal fluid.

The principle of treatment for depletion of tissue (Dhatu Kshaya) is to administer the drugs, which are having the same qualities

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of that Dhatu. Drugs having properties like Madhura (sweet), Sheetu (cold) and Snigdha (unctuous) are effective in enhancing the quality and quantity of Shukra Dhatu.[4] Ghrita also possess similar properties, that is Madhura, Sheetu and Snigdha, and thus helps to increase semen parameters. Ghrita is best among all Sneha used internally and helps for digestion, absorption and delivery of drugs processed in it, to a target organ system.

Further, it is mentioned in Ayurveda texts that it is essential to perform Shodhana (biopurification) procedure before administering the Vajikaraṇa (aphrodisiac) drugs. Only then Brimhana (nourishing) and Balya (gives strength/power/stamina) effect of Vajikaraṇa are achieved. It is clearly stated that without Shodhana, Vajikaraṇa treatment is of no use. Shodhana procedures mainly Virechana are described for the management of Shukra Dosha.[5]

**Aims and objectives**
The objective was to evaluate the efficacy of Virechana followed by oral administration of Go-Ghrita in the management of Ksheena Shukra (oligozoospermia).

**Materials and Methods**
For the clinical study, 42 male patients suffering from primary or secondary infertility for >1 year and having sperm count <15 million/ml and willing to participate in the clinical trial were selected irrespective of religion and caste from the outpatient department of Kayachikitsa or referred from Prasuti Tantra and Streeroga department of IPGT & RA hospital. Permission was obtained from the Institutional Ethics Committee of the institute; vide Ref-PGT/7/-A/ethics/2015-16/2675, dated: December 11, 2015, and the study was also registered in Clinical Trials Registry-India (CTRI) (vide CTRI/2016/01/006559). Informed consent was obtained from all the participants before including them in the present study.

**Inclusion criteria**
Male patients with a age group of 21–40 years having sperm count <15 million/ml[6] and eligible for the procedure of Virechana were included for the present clinical trial.

**Exclusion criteria**
Male patient of age below 21 and above 40 years having sperm count >15 million/ml, patient of azoospermia and aspermia or suffering from varicocele, accessory sex gland infection, sexually transmitted diseases and severe systemic diseases were excluded from the study. Patients who had genetic disorders such as Klinefelter’s syndrome or taking treatment for major psychiatric illness, history of previous medications, and trauma, leading to oligozoospermia and the patient not eligible for Virechana were also excluded from the present clinical trial.

**Laboratory investigation**

**Semen analysis**
Semen analysis was carried out on registering the patients, which was taken as the baseline and thereafter, it was repeated after Samsarjana Karma (dietary regimen after Virechana) and on the 8 weeks of the oral treatment with Go-Ghrita. Serum follicle-stimulating hormone (FSH), serum luteinizing hormone (LH) and serum testosterone were taken as biomarkers and these tests were done before and after the treatment in selected patients due to budgetary provision. Routine hematological and urine examination were carried out to assess the status of the patients and to exclude other pathologies. In suspected cases, ultrasonography of abdomen and pelvis was done to rule out hydrocele, varicocele and other pathologies that are secondary cause of oligozoospermia, before including the patients in present clinical trial.

**Methods**

**Posology**
Before administration of Go-Ghrita, Virechana Karma was performed. The details of drugs used for Virechana Karma are mentioned in Table 1. For the present clinical trial, Go-Ghrita, was procured from Khadi Gramodyog, Jamnagar and authenticated in the pharmacognosy Laboratory of the institute. All other drugs used in the Virechana process were procured from pharmacy of Gujarat Ayurved University, Jamnagar.

**Method of Virechana Karma**
Before administration of Go-Ghrita, all the registered patients were given Virechana. For this purpose, patients who met inclusion criteria and gave consent for the Virechana were administered Trikatu Churna for the first 3 days for Deepana and Pachana (stimulation of digestion) in the dose of 2 g twice in a day with lukewarm water after meal. On the 4th day, after assessing the status of the patients, Cow Ghrita[7] in the dose of 40 ml was given in the early morning on empty stomach with lukewarm water. The patients were observed for Sneha Jeerna Laksanaha (proper digestion of Ghrita) and accordingly for the

**Table 1: Details of Virechana Karma**

| Procedure | Drug and dosage | Duration |
|-----------|-----------------|----------|
| Deepana and Pachana (stimulation of digestion) | Trikatu Churna (Shunthi, Maricha, Pippali) 2 g/thrice a day with warm water after meal | 3-4 days |
| Snehapan | Go-Ghrita (cow ghee) (as per Koshtha and Agni) in increasing dose. Average initial dose was 30-40 ml and maximum dose was 260-280 ml | 3-7 days |
| Abhyanga and Vashpa Svedana (body massage and swetation formation) | Bala Taila, twice a day For Vashpasveda Dashamoola Kwatha was used | 3 days |
| Virechana Karma (medicated purgation) | Haritayadi Yoga which contains Haritaki, Saindhava, Amalaki, Gada, Vacha, Rudra, Bajana, Pippali, Shunthi-in equal quantity 18 g | In average dose |
| Sansarjana Krama (purification) | Regulatory diet regimen as per Shuddhi | 3-7 days |
next 5–7 days, the dose of *Ghrita* was given in increasing pattern till the patients achieved proper *Snehana* (internal oleation) features. After completion of internal *Snehana* for the next 3 days, whole-body massage with *Bala Taila* along with *Fashpa Swedana* was done daily once in the morning. During this period, patients were kept on a normal diet with precautions, to avoid excessive oil, or heavy food items. On the day of *Virechana*, after massage and fomentation in the morning, *Virechana Yoga of Haritakyadi Yoga* was given.

**Method of preparation of Haritakyadi Yoga**

For the preparation of *Haritakyadi Yoga*, 18 g (each in same amount) of fine powder of *Hariyaki* (*Terminalia chebula* Retz.), *Saindhava* (*Salt*), *Amalaki* (*Emblica officinalis* Gaertn.), *Vacha* (*Acorus calamus* Linn.), *Vidanga* (*Embelia ribes* Burm. F.), *Rajani* (*Curcuma longa* Linn.), *Pippali* (*Piper longum* Linn.) and *Shunti* (*Zingiber officinale* Rosc.) was taken. About 2 g of *Guda* (*jaggery*) was added to it. To this half glass of water was added and heated until it was lukewarm. This was given to patients on empty stomach.

Thereafter, according to the type of *Shuddhi*, at the end of *Virechana* procedure, 3, 5 and 7 days of post-*Virechana* dietary regimen for revival were advised which included *Peya* (thin gruel of rice), *Vilepi* (thick gruel of rice), *Akrity Yusha* (nonprocessed soup of vegetables/pulses) and *Krita Yusha* (processed with *Ghrita*, salt and pepper, soup of vegetables/pulses) in a sequential pattern.

After completion of *Virechana*, *Go-Ghrita* was administered for 8 weeks in the dose 10 gm twice a day after meal with a cup of milk and patients were asked to report fortnightly and on every visit, the details regarding the status were recorded.

**Criteria for assessment**

The efficacy of the treatment was assessed on the basis of improvement in the subjective as well as objective parameters. For the subjective parameters, an appropriate scoring pattern was adopted for parameters such as sexual desire, erection, rigidity, performance anxiety, ejaculation, orgasm, overall satisfaction, erectile function and post act-exhaustion. The scoring pattern assessed before and after the completion of treatment is shown in Appendix 1.

**Objective parameters**

Improvement in the semenogram was observed, especially on the total sperm count. Changes in serum FSH, serum LH and serum testosterone were also considered for assessment and they were assessed in comparison to the baseline score in all patients.

**Statistical analysis**

General data was subjected to suitable statistical analysis such as descriptive statistics for demographic data, Wilcoxon signed-rank test for nonparametric paired data and paired *t*-test for quantitative parametric paired data.

After preparing the master chart of all the required data in the Microsoft Excel worksheet, statistical calculations were made with the help of Sigma Stat 3.5 software and In Stat 3 software product software by Aspire software international. The results were interpreted as significant (*P* < 0.05), highly significant (*P* < 0.01), very highly significant (*P* < 0.001) and insignificant (*P* > 0.05).

**Observation on demographic data**

A total of 42 male patients of oligozoospermia (*Ksheena Shukra*) were registered for the present study, of which 38 patients completed the full course of treatment, and four patients dropped out as they did not timely report for the follow-up. In the study, the maximum number of patients (47.61%) were in the age group of 21–30 years, belonged to the Hindu religion (95.23%) and 47.61% had secondary education. Nearly, 61.90% of the patients were from urban area and were belonging to poor socioeconomic class (59.52%) and 45.23% of them were laborer by occupation.

Around 53.44% of the patients were doing heavy physical exertion, 59.52% of the patients in the present trial had *Vishama Agni* (irregular digestive process), 50% of patients had irregular dietary habits, 78.57% of the patients had the habit of taking frequent hot water bath and 95.32% of the patients were wearing tight undergarment. About 47.61% of the patients had the habit of chewing tobacco followed by 30.95% having addiction of smoking cigarette, 38.09% of the patients were having reduced and disturbed sleep and 52.38% of the patients were suffering from negative psychological emotions such as stress and worry (35.71).

The 47.61% of the patients had *Vata-Pitta Prakriti* and were having *Madhyama Bala*. About 95.23% of the patients were in the habit of taking *Lavana* (salt) predominant diet. Almost 78.79% of the patients had history of consumption of spicy food, 97.61% of the patients had primary infertility, while 2.38% of the patients had secondary infertility, 78.49% of the patients reported exertion during intercourse, followed by 26.88% of patients with less motivation, 78.57% of the patients complaint of loss of sexual desire, 88.90% of patients with general debility and 50% of the patients had low semen volume and premature ejaculation.

**Results**

**Effect on seminal parameters**

*Go-Ghrita* administered after *Virechana* (medicated purgation) provided increase of 80.92%, on total sperm count, 41.78% increase in sperm motility, 12.58% increase in normal form of total sperm, 41.69% decrease in abnormal forms, and increase in semen volume by 45.22%. Further analysis revealed when the effect was assessed for the period of before treatment and after *Samsarjan Krama* i.e. after the completion of *Virechana procedure* 68.87% increase in total sperm count was found 37.76% increase in total sperm count was found when the effect was assessed for the period between *Samsarjana Karma* and after the treatment i.e. eight weeks of treatment with oral administration of *Go-Ghrita*. 

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In sperm motility, before treatment and after *Samsarjan Krama*, 38.55% increase was found. When assessed between after completion of *Samsarjana Krama* and after completion of treatment, 15.09% increase in sperm motility was found. Before treatment and after, assessment of *Samsarjan Krama* revealed that cow *Ghrita* provided 9.85% increase in normal sperm count. After *Samsarjana Krama* and after treatment, the therapy provided 4.60% increase in normal sperm count.

Similarly, the analysis of the result showed that during before treatment and *Samsarjan Krama* decrease in abnormal form was 27.88%. After *Samsarjana Krama* and after completion of treatment provided decrease in abnormal form of sperm of 24.85% (Table 2).

**Effect on hormones**

*Go-Ghrita* administered after *Virechana* provided 17.38% increase in serum FSH, 26.63% increase in serum LH value and 25.84% increase in serum testosterone value. All these changes reported on hormones were statistically highly insignificant (Table 3).

**Effect on hematological parameters**

There was no statistically significant changes (*P > 0.05*) in the hematological parameters such as hemoglobin, total red blood cell count, total leukocyte count, differential count and biochemical parameters such as fasting blood sugar, serum cholesterol, serum triglyceride, serum creatinine, blood urea and serum glutamic pyruvic transaminase. Although there is a change from pretest to posttest mean value of above parameters it was within the normal limits. This proves that there was no adverse effect of the treatment.

**Effect of therapy on subjective criteria**

*Go-Ghrita* administered after *Virechana* (medicated purgation) provided statistically highly significant (*P < 0.001*) result on generalized debility (83.33%), sexual weakness (16.66%), sexual desire (78.02%), erectile dysfunction (75.71%), erectile rigidity (65.15%), orgasm function (72.72%), increase in overall satisfaction (81.74%), frequency of coitus (57.47%) and duration of coitus (43.27%) and ejaculatory function (57.47%) was found.

**Overall effect of therapy**

Assessment of overall effect of the therapy revealed that *Go-Ghrita* administered after *Virechana Karma* provided excellent response in six patients (15.78%) and these patients were able to impregnate their partner. Fifteen patients (39.47%) showed marked positive response, whereas thirteen patients (34.32%) had moderate positive response and four patients (10.52%) had mild positive response.

### Table 2: Effect of therapies on seminal parameters

| Parameters          | Mean value (million/ml) | Difference | Percentage | Paired t-test (n=38) | Significance |
|---------------------|-------------------------|------------|------------|----------------------|--------------|
| BT                  | AT                      | ±SD        | ±SE        | t                    | P            |
| Total sperm count   | 9.42                    | 55.50      | 46.08      | 80.92                |              |
|                     | BT: 12.18               | 27.14      | 68.87†     | 26.72                | <0.001       |
|                     | AS: 40.28               | 15.21      | 37.76†     | 26.89                | <0.001       |
| Sperm motility      | BT: 41.18               | 20.78      | 74.17      | 20.78                | <0.001       |
|                     | AS: 59.21               | 18.02      | 38.55†     | 17.06                | <0.001       |
| Normal sperm form   | BT: 79.82               | 10.31      | 12.58      | 6.43                 | <0.001       |
|                     | AS: 86.16               | 6.34       | 74.95      | 6.46                 | <0.001       |
| Abnormal form of    | BT: 19.52               | 4.74       | 41.69      | 11.08                | <0.01        |
| sperm               | AS: 21.23               | 2.21       | 27.88†     | 6.92                 | <0.057       |
| Semen volume        | BT: 1.45                | 1.02       | 74.22      | 2.32                 | <0.001       |
|                     | AS: 2.00                | 0.56       | 14.05      | 0.52                 | <0.001       |

BT: Before treatment, AT: After treatment, AS: After *Samsarjana Krama*, SD: Standard deviation, SE: Standard error, HS: Highly significant, IS: Insignificant, S: Significant, †: Increase, †: Decrease

### Table 3: Effect of therapies on hormones

| Hormones (n=20) | Mean value (ng/ml) | Difference | Percentage | Paired t-test (n=400) | Significance |
|-----------------|--------------------|------------|------------|-----------------------|--------------|
| BT              | AT                 | ±SD        | ±SE        | t                     | P            |
| FSH             | 6.80               | 8.79       | 1.99       | 17.38†                |              |
|                 |                    | 1.68       | 0.38       | 5.20                  | <0.001       |
| LH              | 4.89               | 6.40       | 1.51       | 26.63†                |              |
|                 |                    | 1.07       | 0.26       | 6.15                  | <0.001       |
| Testosterone    | 566.39             | 734.63     | 168.24     | 25.84†                |              |
|                 |                    | 153.27     | 35.11      | 4.79                  | <0.001       |

BT: Before treatment, AT: After treatment, SD: Standard deviation, SE: Standard error, HS: Highly significant, †: Increase, FSH: Follicle-stimulating hormone, LH: Luteinizing hormone
Discussion

Infertility and problems of impaired fecundity have been a concern through ages and is also a significant clinical problem today, which affects 8%–12% of couple worldwide in addition to 30% to 40% of cases involving both male and female factors. Male factor is present in one-half of infertile couples.[12] Go-Ghrita possess Vrishya (aphrodisiac), Rasayana (rejuvenation), Vata and Pitta pacifying effect and digestive action.[13] It also contains Vitamin A, D, E and K. Among them, Vitamin A and E are antioxidants and are helpful in preventing oxidative injury to the body.[14]

Shodhana procedures are to be performed before administration of Vajikarana drugs, especially Virechana Karma has been indicated in the cases of vitiated Shukra. Therefore, Virechana Karma was selected for the present study.

Previous study on oligozoospermia concluded that Virechana Karma should be performed before administration of Vajikarana drugs and better and early changes in total sperm count can be achieved by Virechana Karma. In this study, significant result in sperm count and reduction in abnormal form of sperm along with significant effect on serum LH hormone level was found.[15]

Maximum patients in this study were from the age group of 21–30, that is, in third decade of life and had imbalanced Agni, mainly Vishamagni (digestion controlling system). Substance which can help to balance Pitta, also act on disturbed state of Agni. If Jatharagni is normal, then all Dhatu and Dhatvagni (metabolism) perform properly, leading to formation of optimum Rasa and Shukra Dhatu.[16]

Go-Ghrita administered by Nasya, helps to regulate hormonal balance at hypothalamus level. Hormonal imbalance is one of the most etiological factors of infertility. Go-Ghrita is also can bond with lipid-soluble nutrients and herbs to penetrate the lipid-based cell walls of the body. Thus, it increases the potency of certain herbs by carrying the active components to the interior of the cells, which helps to increase marrow, semen and immunity (Ojas).[17] It alleviates Vata-Pitta Doshha which is main Dosha leading to Ksheena Shukra.[18] Go-Ghrita also provided significant increase in STH, SFSH and S. Testosterone.

Causative factors primarily affect the hypothalamic–pituitary–gonadal axis, which results in disturbances of serum FSH, serum LH and serum testosterone and testicular damage causing reproductive failure and infertility. Hence, it is important to maintain hormones in its normal state. Concerted action of the two gonadotropins, FSH and LH are necessary for the production of male gametes in the testis. FSH and LH exert their effect by binding to plasma membrane receptors of the target cells.[19] LH mainly functions to stimulate testosterone secretion from the Leydig cells of the testicle, while FSH stimulates sertoli cells to facilitate germ cell differentiation. Gonadotropin release is modulated by a variety of other signals, such as estradiol (a potent inhibitor of both LH and FSH release), and inhibition from the sertoli cell, which causes a selective decrease in FSH release. Decreased amount of LH production fails to initiate spermatogenesis, thus causing oligospermia due to secondary deficiency of testosterone.[20]

Probable mode of action of Virechana and Go-Ghrita

Vajikarana drugs (aphrodisiac recipes) should be administered after purifying the body,[19] i.e., proper Shodhana either by Yamana or Virechana. In this study, statistically significant increase in sperm count was found after the completion of Virechana Karma and hence, it is clear from the generated data that Virechana enhances the quantity level of Shukra definitely. This may be because Virechana Karma increases the bioavailability of drugs by opening channels and by improving the nutritional assimilation which may lead to increase serum LH level.

Go-Ghrita contains Vitamin A, D, E and K. Vitamin E is an anti-sterility Vitamin, Vitamin A and Vitamin E, both are antioxidant vitamin and helps to enhance spermatogenesis. Also, study has reported that vitamin D supplementation effect on circulating levels of testosterone and also its consistent effect was reported on semen quality.[21] Go-Ghrita has Madhura (sweet), Snigdha (unctuous) and Sheeta (cold) quality and Shukra is also homologous with it. On the basis of the qualitative aspect also, Ghrita is Rasayana and useful in palliating Vata and Pitta which are the main culprit Dosa involved in Ksheena Shukra, that is, oligozoospermia.[22]

Shodhana has direct effect on metabolism. As Shukra is a Sara of all Dhatu, if Rasa formation is not proper, then Uttarottara Dhatu (consequence tissue) will be nourished properly. By Shodhana as preoperative regimens, medicine is adequately substantiated.[23] It also open the occluded channels in the body and thus enhances the quality and quantity of Shukra. Go-Ghrita helps in improving digestive strength by revitalizing secretion of enzymes. Go-Ghrita is easy to absorb and metabolize, as it contains low-chain fatty acids. Constipation can be cured with cow ghee. If one consumes a spoonful of Go-Ghrita mixed in lukewarm milk daily, it helps to healthy bowel habit daily, which causes to cure Apana Vayu vitiation, which is responsible for excretion of flatus, urine, stool and semen.[24]

Conclusion

Go-Ghrita administered after Virechana Karma provides statistically highly significant increase in total sperm count, sperm motility, normal form of sperm, volume of semen and significant decrease in abnormal form of sperm. Significant increase in serum testosterone, serum FSH and serum LH indicates that the combined therapy of Virechana followed by Go-Ghrita acts through hormonal pathway to improve seminal parameters. As Go-Ghrita has provided significant result on seminal parameters, thus it can be choice of drug for the management of oligozoospermia. As Virechana Karma has also provided a significant increase in total sperm count and improved the quality of semen, it can also concluded that Virechana Karma alone is also effective in cases of oligozoospermia.
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Conflicts of interest
There are no conflicts of interest.

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## Appendix

**Appendix 1: Scoring pattern adopted for sexual parameters**

| Symptoms                | Grade                                           | Score |
|-------------------------|-------------------------------------------------|-------|
| Sexual desire           | No desire at all                                | 3     |
|                         | Lack of desire                                  | 2     |
|                         | Occasional desire only on demand of partner     | 1     |
|                         | Self and partner normal desire                  | 0     |
| Erectile function       | No erection or swelling without any methods    | 5     |
|                         | Erection with artificial method                 | 4     |
|                         | Very slight swelling but unable to penetrate   | 3     |
|                         | Some swelling, able to penetrate                | 2     |
|                         | Erection with occasional failure                | 1     |
|                         | Full swelling whenever desire                   | 0     |
| Ejaculatory function    | On mere thoughts/slight or no ejaculation at all| 4     |
|                         | During foreplay before penetration              | 3     |
|                         | During sexual intercourse <30 s/at least 1-5 pelvic thrusts | 2     |
|                         | During sexual intercourse <60 s/at least 5-10 pelvic thrusts | 1     |
|                         | During sexual intercourse >60 s/at least >10 pelvic thrusts | 0     |
| Overall satisfaction    | No satisfaction after every act                 | 4     |
|                         | Satisfaction in 25% act                         | 3     |
|                         | Satisfaction in 50% act                         | 2     |
|                         | Satisfaction in 75% act                         | 1     |
|                         | Satisfaction after every act                    | 0     |
| Frequency of coitus     | 0                                               | 3     |
| (in weeks)              | 1-2                                             | 2     |
|                         | 3-4                                             | 1     |
|                         | >4                                              | 0     |

**Scoring for associated symptoms**

- **Daurbalya** (debility)
  - Cannot do any work: 4
  - Weakness and work affected: 3
  - Weakness but routine work not affected slight: 2
  - Weakness: 1
  - No weakness: 0

- **Mukha Shosha** (dryness of mouth)
  - Dryness not relieved by anything: 2
  - Dryness relieved by anything putting in mouth: 1
  - No dryness of mouth: 0