

**AN OBSERVATIONAL STUDY OF LONG TERM EXPOSURE TO FIRE
AND ITS HEALTH IMPACT IN FEMALE COOKS WITH SPECIAL
REFERENCE TO ABNORMAL UTERINE BLEEDING (ASRUKDARA)**

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ABSTRACT

Long term exposure to fire (अनलसेवा) is one of the etiological factors of *raktavaha srotasa* vitiation and *asrukudara* is one of the vitiation signs of *raktavaha srotasa*. Occupations or workplaces where one works near fire are the fire fighters, miners, workers working near industrial fire, etc and the domestic and hotel cooks. Abnormal uterine bleeding is a common gynaecological complaint with multiple aetiology and diverse pathophysiology. It consists of the conditions like menorrhagia, polymenorrhagia, metrorrhagia, oligomenorrhagia, hypomenorrhoea. According to aacharya, excessive and/or prolonged blood loss during menstruation or even scanty blood loss during inter menstrual period with body ache and pain is known as *asrukudara*. Hence, the signs and symptoms of conditions under abnormal uterine bleeding can

be correlated with signs and symptoms of *asrukudara*. Total 100 female cooks who had daily exposure to fire were included according to inclusion and exclusion criteria. They were studied for any abnormal uterine bleeding. In this study, it was observed that 37 females out of 100 were suffering from abnormal uterine bleeding (*asrukudara*). Hence, it was proved that, there is association between long term exposure to fire and abnormal uterine bleeding i.e. *asrukudara* in female cooks.

KEYWORDS: Long term exposure to fire, अनलसेवा, abnormal uterine bleeding, *asrukudara*, *raktawaha srotas*, female cooks.

INTRODUCTION

Long term exposure to fire (अनलसेवा) is one of the etiological factors of *raktavaha srotasa* vitiation^[1] and *asrukdara* is one of the vitiation signs of *raktavaha srotasa*.^[2] Both exposure to fire (अनलसेवा) and sunlight (आतपसेवा) lead to exposure to heat, but they are separately mentioned as two different etiological factors. And therefore exposure to fire (अनलसेवा) carries more significance for its specific mention.

Almost in every household kitchen of Indian cities, Liquefied Petroleum Gas (LPG) is used as fuel and therefore it is the place where domestic female cooks are exposed to heat generated by fire (अनल). Domestic female cook is an emerging occupation in urban India; however statistical data is not available. Majority of these cooks work in more than 2- 3 houses and are therefore exposed to heat generated by fire (LPG) (अनल) for more than two to three hours approximately. Majority of them come from marginalized population where ignorance about health related issues is commonly found. Abnormal uterine bleeding is a common gynaecological complaint with multiple aetiology and diverse pathophysiology. It consists of the conditions like menorrhagia, polymenorrhagia, metrorrhagia, oligomenorrhagia, hypomenorrhoea.^[3]

According to aacharya, excessive and/or prolonged blood loss during menstruation or even scanty blood loss during inter menstrual period with body ache and pain is known as *asrukdara*.^[4] So, the signs and symptoms of conditions under abnormal uterine bleeding can be correlated with signs and symptoms of *asrukdara*.

Trials conducted on rats^[5] and lactating dairy cattles^[6] shows changes in endocrine functions when exposed to long standing heat stress.

In this study, it was observed that 37 females out of 100 were suffering from abnormal uterine bleeding (*asrukdara*). From this study, it can be concluded that long term exposure to fire, vitiate the *raktavaha srotas* and signs and symptoms of vitiated *raktavaha srotasa* can be seen in that individual.

MATERIALS AND METHODS

In this observational study total 100 female cooks were selected according to inclusion and exclusion criteria.

Selection of patients

1. Inclusion Criteria

- i. Age group 25-40 years.
- ii. Females will be selected irrespective of caste, socio economic status.
- iii. Otherwise apparently healthy females.
- iv. Females cooks working in kitchens using LPG as a fuel for at least 3 hours per day with or without break for at least 5 days per week and at least for last 3 months (i.e. long term exposure to fire)
- v. Atmospheric temperature not exceeding more than 30 degree celsius.
- vi. Females using sanitary napkins.

2. Exclusion Criteria

- i. Diagnosed cases of uterine fibroid, polycystic ovarian disease, uterine CA.
- ii. Females using: a) Contraceptives : Hormonal (Oral contraceptive pills, Intra dermal injections), Mechanical (Cu-T, Tubectomy) b) Anticoagulant therapy
- iii. Female having recent abortion.
- iv. Pregnant and lactating women.
- v. Females using towels, tampons during menstrual cycle.

100 Female cooks between 25 to 40 years of age working in household kitchens using LPG as a fuel for at least 3 hours per day with or without break for at least 5 days per week and at least for last 3 months (i.e. long term exposure to fire) were selected by purposive method of selection. Informed written consents were taken for inclusion in the study. They were asked for previous three months history of menstrual cycle. Females with/ without signs and symptoms of *asrukdara* were included in study. Standardization of sanitary napkin was done to measure the accurate menstrual blood loss by using PBAC (Pictorial Blood Loss Assessment Chart). They were observed for abnormal uterine bleeding i.e. *asrukdara* for subsequent one menstrual cycle. Observations were noted. Statistical analysis was done. Results were noted.

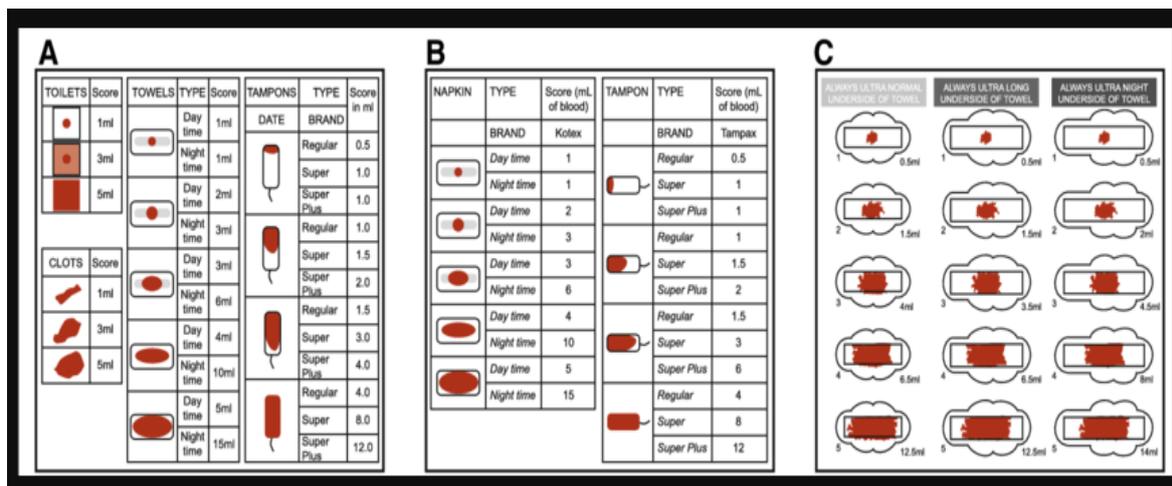


Image 1: PBAC /Pictorial Blood Loss Assessment Chart.^[7]

RESULTS AND DISCUSSION

Among all studied patients, it was found that 37 patients i.e. 37% were suffering from *asrukdara*. From these 37 patients, 36 patients were having past history of *asrukdara* and 37 patients were having present history of *asrukdara*. It was observed that maximum 18 patients had hypomenorrhoea, 8 patients had menorrhagia, 6 patients had oligomenorrhoea, 4 patients had polymenorrhoea, 3 patients had epimenorrhoea, 1 patient had metrorrhagia and no patient found having menometrorrhagia.

That means, long term exposure to fire can affect the menstrual cycle, and abnormalities can be seen in the form of abnormal uterine bleeding i.e. *asrukdara*.

CONCLUSION

From the collected data, it was observed that exposure to fire vitiate the *raktavaha srotasa* and shows signs and symptoms of vitiation. Significant association of long term exposure to fire produced by LPG and *asrukdara* are noticed i.e. in 37% patients.

From this, it was concluded that, long term exposure to fire is one of the intermediating factors in the pathology of *asrukdara* as it is explained in samhita granthas.

Hence, there is association between long term exposure to fire (अनलसेवा) and abnormal uterine bleeding in female cooks.

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