



Middle East Fertility Society
Middle East Fertility Society Journal

www.mefsjournal.org
 www.sciencedirect.com



ORIGINAL ARTICLE

The relationship between Ramadan fasting with menstrual cycle pattern changes in teenagers

Muhammad Ikhsan^{a,b,*}, Muhammad Fidel Ganis Siregar^b, R. Muharam^{c,d}

^a Indonesian Reproductive Medicine Research and Training Center, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia

^b Department of Obstetrics and Gynecology, Faculty of Medicine Universitas Sumatera Utara, Medan, Indonesia

^c Yasmin IVF Clinic, Cipto Mangunkusumo General Hospital, Jakarta, Indonesia

^d Department of Obstetrics and Gynecology, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia

Received 19 April 2016; revised 31 May 2016; accepted 18 August 2016

KEYWORDS

Menstruation;
 Menstrual cycle;
 Ramadan fasting;
 Menstrual blood quantification;
 Pictogram

Abstract *Background:* Menstrual cycle plays an important role in female reproductive health. One of many factors contributing to affect variability of menstrual cycle is dietary pattern. During the Ramadan fasting, all dietary pattern, sleep pattern, and daily activities will be altered and thus contributing to menstrual cycle.

Objective: To assess the relation between Ramadan fasting and menstrual cycle changes among teenagers.

Methods: This is an observational study with cohort prospective approach. 85 female students of 1 Senior High School in Manyak Payed District were enrolled in this study. Respondents were asked to fill the questionnaires regarding menstrual cycle for 4 consecutive months to assess their menstrual cycle. Parameter observed was changes in menstrual cycle which could be in duration, frequency, and menstrual blood volume. For menstrual blood volume, the quantification was using menstrual pictogram questionnaire.

Results: Among 85 female students enrolled, 14 students were menorrhagia and 6 students were oligomenorrhea during Ramadan fasting. There was no difference in menstrual cycle abnormalities during Ramadan fasting between the respondents who started fasting in follicular phase or luteal phase ($p > 0.05$). However, for menstrual blood quantification, there was a significant difference between menstrual blood volume before and during Ramadan fasting marked by the increased mean in menstrual blood volume as much as 13.84 mL with p value < 0.001 .

* Corresponding author at: Indonesian Reproductive Medicine Research and Training Center, Rumah Sakit Cipto Mangunkusumo, Jl. Diponegoro No. 71, Jakarta Pusat, Indonesia. Fax: +62 21 3928720.

E-mail address: muh.ikhsan.md@gmail.com (M. Ikhsan).

Peer review under responsibility of Middle East Fertility Society.



Production and hosting by Elsevier

<http://dx.doi.org/10.1016/j.mefs.2016.08.004>

1110-5690 © 2016 Middle East Fertility Society. Production and hosting by Elsevier B.V.

This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Please cite this article in press as: Ikhsan M et al. The relationship between Ramadan fasting with menstrual cycle pattern changes in teenagers, Middle East Fertil Soc J (2016), <http://dx.doi.org/10.1016/j.mefs.2016.08.004>

Conclusion: During Ramadan fasting, there were changes in teenagers' menstrual cycle especially in menstrual blood volume. There was significant difference ($p < 0.001$) in menstrual blood volume before and during Ramadan fasting.

© 2016 Middle East Fertility Society. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Menstrual cycle plays an important role in female reproductive health. Menstruation is a normal physiologic process regulated by hormonal action and interaction between hypothalamus, pituitary, and ovaries [1]. Generally, menstrual cycle has 4 dimensions which consist of regularity, menstrual frequency, menstrual duration, and menstrual blood volume [2].

There are many factors contributing to variability of menstrual cycle. Those factors alter or suppress hormonal secretion rhythm in hypothalamus-pituitary-ovaries axis. Variability during follicular phase may be caused by ovulation disturbance. Variability during luteal phase may be caused by ovulation process, defect in corpus luteum, and inadequate estrogen and progesterone production [3].

Median length of normal menstrual cycle is 28–30 days. Menstrual duration usually takes 5 days, with the menstrual blood volume 25–35 mL [4]. Women in reproductive age usually complain about having menstrual cycle disturbance once in a life-time. Those complaints may be about cycle irregularity, and about 37% complaint about shorter or longer menstrual cycle [5,6]. Many factors might cause menstrual cycle irregularity, for example smoking, exercise, diet, body mass index, age of menarche, and psychosocial stressor [7]. Thus, it is important to know about normal variability in menstrual cycle because it might be the first sign and symptom of reproductive abnormalities in women [3,8].

One of many factors contributing to affect variability of menstrual cycle is dietary pattern [8]. During Ramadan, millions of Moslem worldwide are going through Ramadan fasting. Fasting in Islam religion, is avoiding any kind of meal and drink starting from the dawn until sunset. In Indonesia, Ramadan fasting time lasts for 14 h a day for one full month. The difference may be major (In Indonesia e.g. may reach up to 60–72 min). During Ramadan fasting, all dietary pattern, sleep pattern, and daily activities will be altered and thus contributing to menstrual cycle [9].

Nowadays, many researches and studies in medical science focus on clinical effect of fasting for health purpose and risk for systemic diseases. Menstrual cycle is an important indicator for women reproductive health. However, only few studies have shown the effect of Ramadan fasting to menstrual cycle.

2. Material and methods

This is an observational study with cohort prospective approach to assess the relation between Ramadan fasting and menstrual cycle in female teenagers. We collected the data in 4 consecutive months starting from March 2015 until July 2015. This study was conducted in 1 Senior High School of Manyak Payed District, Aceh Tamiang, Aceh Province, Indonesia.

The inclusion criteria were female teenagers between 15 and 19 years old; normal body mass index ($18.5\text{--}23\text{ kg/m}^2$); age of menarche between 12 and 15 years old; and obtained informed consent.

The exclusion criteria were having amenorrhea or not having menstruation in 3 consecutive months; having one or more abnormalities in menstrual cycle (hypermenorrhea/menorrhagia, hypomenorrhea, oligomenorrhea, polymenorrhea, and/or metrorrhagia); irregular menstrual cycle in last 3 months; planning on not going thorough Ramadan fasting; having regular fasting beside the Ramadan fasting; having routine heavy exercise (aerobic or anaerobic exercise more than 5 times per week with more than one hours per day in duration and heavy intensity); having significant weight changes in last 3 months; having physical and psychosocial stressors that altered menstrual cycle in last 3 months; having long term steroid therapy, chemotherapy, hormonal therapy, or radiotherapy; and having chronic illnesses (hyperthyroid, heart failure, chronic anemia, and malignancy).

The data collected in this study were primary data. Every respondent had been informed of the purposes of this study, the procedures, and data collected. Informed consents have been obtained from the respondents' parents or guidance. Every respondent had agreed to share the data collected regarding the publication of this study. This study had been approved by ethical committee of University of Sumatera Utara, Medan, North Sumatera, Indonesia.

Data collection was via questionnaire that was filled by respondent. In the beginning of the study, baseline data about history of menstrual cycles, history of physical activity, medical conditions and drugs consumed, were obtained from every respondent. For the body mass index data, every respondent had their weight and height measured directly.

Data were collected every month starting three months before Ramadan fasting and one month during Ramadan fasting to assess regularity of menstrual cycle and its changes. The measured data were nominal and numerical data for menstrual blood volume.

The respondent who started Ramadan fasting in follicular phase (between day-1 and 14 days before first day of her next menstrual cycle) was considered in follicular group. Luteal group were respondents who started Ramadan fasting 14 days or more before first day of her next menstrual cycle (luteal phase).

Menstrual cycle changes were deviation in regularity, frequency, duration, and menstrual blood volume. The respondents were menorrhagic if menstrual blood volume exceeded 80 mL per cycle or having more than 8 days of menstruation; hypomenorrheic if menstrual blood volume was less than 30 mL per cycle or having less than 3 days of menstruation; polymenorrheic if menstrual cycle was less than 21 days; and oligomenorrheic if menstrual cycle was more than 35 days. Metrorrhagia was considered when uterine bleeding occurs outside the menstrual cycle.

Download English Version:

<https://daneshyari.com/en/article/8783325>

Download Persian Version:

<https://daneshyari.com/article/8783325>

[Daneshyari.com](https://daneshyari.com)