



A Review of Pioneer Physicians' Work on Maternal Health in Pregnancy in Ancient Iran; Narrative Systematic Review

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(Received 18 Aug 2013; accepted 11 Nov 2013)

Abstract

Background: Maternal lifestyle and behaviors during pregnancy have been associated with future health outcomes for mothers and babies. Iranian Traditional medicine, which is a holistically-oriented medical discipline, has special attitudes towards pregnancy. The purpose of the study is the investigation of maternal health in medical books of ancient Iran. This study is a systematic review scrutinizing issues concerning lifestyle during pregnancy based on "Avicenna's Canon medicine" and "Rhazes Al-Havi" and for complete discussion, other reliable sources in traditional medicine which was conducted following the categorization and analysis of the gleaned data. Based on approaches by Iranian Traditional Medicine, the most important topics in lifestyle habits during pregnancy are divided into four main groups: Nutrition, physical exercise, sexual activity and psychological stress. Then special recommendations are suggested which include a regimen to facilitate labor. Eating behaviors and other lifestyle habits have a major role in optimizing the health of women in pregnancy. Regarding to traditional medicine viewpoints paying special attention to correcting diet, life style and preventive attitude with effective and simple therapeutic procedures, it seems that traditional medicine can offer efficient managements to alleviate some pregnancy complications.

Keywords: Pregnancy, Maternal health, Lifestyle, Iran, Traditional Medicine

Introduction

In ancient times the Iranian physicians had carried out many experiments concerning the maternal health and had obtained important knowledge and professional skills in this field. Iranian pioneer physicians played a crucial role in the development of medicine in the medieval Europe (1). Iranian Traditional Medicine (ITM) (Persian Medi-

cine) deals with the entirety of all the knowledge and practice used in prevention, diagnosis and recovery from diseases in Persia from the ancient times till the present (2). ITM dates back to over 8000 years B.C. and it is a division, if not the source, of the so-called Arabic-Unani medicine as quoted by Cyril Elgood, the English medical his-

torian (3). The most influential Iranian physicians were Avicenna and Rhazes (4).

Avicenna (IbnSina), lived in the medieval period (980 – 1037 A.D). The main ancient book and his masterpiece in medicine is “Canon of medicine” (“Al- Qanon fi Al-Tibb”) (5, 6). This work, which presents a clearly organized summary of all medical knowledge of that time (7), has played a fundamental role in the practice of medicine in East and West starting from the 11th to the 17th century (8).

In “Canon of Medicine”, Avicenna states the goal of medicine as maintaining health or restoring it after recovery from a disease. He adopted a health-oriented point of view towards Public Health. Thus, he is well-known as the forerunner of Preventive Medicine (2).

In recent times, researchers have taken up a new interest in different medical topics in “Canon” (9-11). In addition to Avicenna, Rhazes or Razi (864– 925 AD) is regarded as a distinguished physician in the history of ITM. He was an Iranian scientist who wrote his books in Arabic, and so, he was called the Arab Galen. In medicine, his contributions were so significant that he was one of the most famous physicians until the 17th century in Europe. The largest and most important of Rhazes’s medical books is “Al-Hawi fi Al-Tibb (4, 12).

As women's health issues gained more and more attention as a target group, pregnancy regimens were taken out of the context of preventive medicine and eventually integrated in books dealing mainly with human reproduction and women's health.

In the Middle Age such recommendations were usually described in the pregnancy regimens of medical schools. They were conservative in nature and in addition to the importance of topics such as nutrition in maternal health they took into consideration the effects of air, exercise and rest, sleeping and waking, repletion and excretion, and the passions and emotions of the pregnant woman as well (13).

The twenty-first chapter of the third book of Al-Qanon fi Al-Tibb deals principally with obstetrics and various uterine diseases. In this chapter, he

has provided detailed accounts of lifestyle in pregnancy and strategies for their management.

At present great attention is being paid for the wellbeing of the women during pregnancy, motherhood and their children before and after birth. In this regard many preventive and screening methods using preconceptional and prenatal counseling, regular medical visits and diet recommendations have been developed (14). However, nowadays there is also a great interest especially by women in their reproductive age for alternative medicine which requires adequate knowledge from both healthcare providers and users (15). This study was performed in order to present some selected sections of Avicenna’s masterpiece “Canon” as a resource for Iranian complementary medicine and other ancient books on maternal lifestyle to provide suggestions for practitioners caring for pregnant women.

Research Method

This study was a systematic review. As far as the goals of the study are concerned, the contents relevant to health care and lifestyle in pregnancy were selected from “Al- Qanon fi Al-Tibb” and “Al-Hawi fi Al-Tibb”. Other reference textbooks (17-34) in traditional medicine were also used to achieve a comprehensive study in this respect. The accumulated contents were then classified and renamed as major topics in the field of medicine. Finally “content analysis” was used for data analyzing.

Results

Following a thorough deliberation and organization of data, we provided an exhaustive review of the most significant viewpoints concerning lifestyle in pregnancy from the main ancient books of the Iranian Traditional Medicine. The topics were divided into six main groups of nutrition, physical exercise, sexual activity, psychological stress, other useful tips and strategies of the ninth month to facilitate delivery. In this article, the major issues of these areas have been presented and discussed.

Nutrition

The quality of nutrition and the type of food have played a substantial role in the development of medical sciences. Nutrition was a focal issue in medical sciences in ancient medicine references (16). It was also strongly believed that the kind of food consumed during pregnancy influences both the mother and the child, and therefore not just the present but also future generations (13). On the basis of our scrutinizations, Avicenna deals with two major aspects of the woman's nutrition in the pregnancy regimen: Recommended foods and foods to be avoided.

Recommended foods

Recommendations for food can be categorized into five major areas:

First, the consumption of "moderate amounts of food which are suitable for the stomach and can lead to good digestion" (17-21). Second, foods should be eaten several times during the day and not just in one big meal (17, 21-24). Third, pregnant women should eat light, digestible foods especially when they approach labor and delivery (18, 21, 25).

Fourth, fruits and vegetables such as currant (raisin), grapes, sweet quince, sour-sweet apple, pear, almond, sour-sweet pomegranate, lettuce and succor are highly recommended (17-19, 21-23, 26-28). Fifth, foods to be consumed during pregnancy include: bread made from fine wheat, meat (francolin, poultry, yeanling), liquid foods and soups, and traditional pottage named "Esfidbaj" and "Zyrbaj" in Persian language (17, 18, 21, 29). "Esfidbaj" is made up of soft substances (fats) and soft meat (Chicken, goat or lamb), legumes, beans, spinach, zucchini, peeled mung, peeled barley, rice, mastic, and coriander with proper warm spices (30).

"Zyrbaj" comprises meat, peeled chick pea, sesame oil, shelled almonds, white sugar, vinegar, saffron, cinnamon, dried coriander and rosewater (30).

Prohibited Food

According to the Iranian traditional medicine before and during pregnancy a woman has to avoid

certain foodstuffs and eating habits which can be harmful for the pregnancy and might lead to miscarriage or diseases and abnormalities in the offspring. Absolute prohibitions are as follow: Starvation and overeating (17, 22, 28), bad food and mixing of bad and diverse food in the stomach (17, 18), food and drinks which are too hot or too cold, eating ice, snow and sleet (22), avoiding sharp and /or very pungent odors (18, 22, 26, 28), too oily or too sweet substances and food (18, 20) Astringent food should be used with caution (28), taking vinegar (22), bitter and sharp foods such as caper, turmus, raw olives, peppers, chili, and likewise should also be avoided (17, 21). Foods which predispose flatulence such as: beans, broad bean, chick pea, caper should be avoided (19, 20, 25) Foodstuffs such as chick pea, beans, safflower, sesame, fennel, rue, fenugreek, celery and clover which are believed to provoke menstruation are to be avoided (17, 20, 22, 28) Substances that cause cardiac and stomach weakness and miscarriage for instance: violets, marshmallow, common mallow should be avoided (18, 20), and finally, if humid humor is high in the pregnant woman's body, all fruit with high water content, fatty pottage and long-term and frequent bathing should be avoided, because high humidity in the body can cause miscarriage (18, 24, 25, 27).

Exercise and physical activity

On the whole pregnant women should avoid strenuous sports which can stimulate the fetus and cause miscarriage. Other recommendations are as follow (21, 22, 28): Extreme movements such as running and jumping are forbidden (17, 25, 28), moderate exercise and mild walking can be very useful (17, 21), proper rest and sleep are quite essential (18, 24), beating objects vigorously can cause a severe shaking of the fetus and should be avoided (17, 18, 28) and carrying heavy loads, allowing other children to sit on the abdomen and falling or any other trauma should be avoided (17, 22, 25, 27).

Sexual Activity

In ITM, due to the physical and emotional stimulation which occurs in sexual intercourse, it should

be done with limitations in pregnancy, especially in high-risk cases with the following instructions (22, 27) : Marital relations are to be restricted, particularly in early and late pregnancy, and are strictly interdicted where there is a tendency to abortion (17, 22, 24) . All relations or contacts should be strictly forbidden during the last months of gestation (29). Too much intercourse especially in early and late pregnancy particularly during the first pregnancy should be avoided. The reason for avoiding sexual intercourse is the risk of cervical dilatation, stimulation of the fetus, and miscarriage (17, 22). If intercourse is done, full penetration should be avoided (22, 25, 27) and intense movements during intercourse ought to be omitted (22, 28).

Psychological Stress

Psychological states or affective symptoms (emotions and passions) have a major role in maintaining health and treating diseases. Severe emotional and psychological stress during pregnancy can lead to miscarriage, especially in the first trimester. Pregnant women should avoid strong emotions, negative and positive feelings, anger and sadness. They should also avoid intense fear, shouting aloud and loud noises (17, 22, 25, 28, 31).

Other useful advice

In addition to the above mentioned topics some of the other useful tips are as follows: Covering below the ribs with soft wool to prevent the body from catching cold is recommended (17, 18, 21, 26), frequent bathing should be avoided except near delivery time (17, 22, 28, 32) and head anointment which is likely to result in catarrh and cough that can in turn cause severe shaking of the fetus and abortion, should be avoided (17, 18, 22, 28).

Strategies of the ninth month to facilitate delivery

In the ninth month, Avicenna in ITM has special recommendations which include a regimen with guidelines to facilitate labor, as follow: Bathing frequently (19, 29, 32), taking digestible and light food, when the woman approaches labor

(26), cutting down on food amount in final days of pregnancy (20, 25), eating fatty foods and fatty sweets mixed with almond oil at the time of delivery (22, 25, 27, 28), in case of constipation, daily intake of sweet almond oil (18, 22, 25, 26) is suggested, drinking fresh cow milk every day (22, 26, 28), avoiding eating sour and astringent foodstuffs (19, 22, 25, 27), taking a hot sitzbath of boiled cabbage, fenugreek, dill, cabbage seeds and flax seeds near childbirth (25, 27, 33, 34) and rubbing the abdomen and back with sesame or dill or chamomile oil after getting out of the sitzbath (22, 25, 28, 33).

Discussion

Nowadays a large part of antenatal care consists of recommendations on diet, hygiene, activities, and habits. Unfortunately, many of these instructions are inconsistent, based on unsupported opinion or conflicting evidence, and potentially capable of doing harm as well as good (35).

According to ITM references, maintaining health and preventing, not treating diseases is the top priority. Pregnant women are a target group who can benefit from these recommendations greatly. Therefore, Avicenna's "Canon" emerged as an undisputed work of reference as well as a strong document for emphasis on pregnant women's health .This work has been practiced for decades worldwide.

There are several recommendations and protocols in pregnancy which are divided into four principal groups: Nutrition, physical exercise, sexual activity and psychological stress.

Nutrition is one of the most essential factors for survival and can affect all aspects of life including health and diseases of an individual, society, and future generations. By having an appropriate diet, pregnant women can keep fit and healthy, and parturition can become facilitated and uncomplicated.

In recent decades, despite the fact that diet is clearly a major determinant of postnatal growth, its importance has been overlooked and little is known about how, or how much, the mother's

diet during pregnancy affects the growth and wellbeing of the fetus.

Obstetricians in the 19th century advised limitation of weight gain during pregnancy in the hope of having lower weight babies and achieving vaginal delivery. Later an era of dietary restriction, especially of protein and salt, began in order to prevent eclampsia. More recently, many nutritionists have advised a high calorie, high protein diet to achieve maximal increase in fetal weight and development. Contrary to most current opinions, it appears that limitation of weight gain and excessive dietary protein may be unsafe and should be avoided. Many controlled trials of dietary supplementation undertaken in pregnancy have conflicting results. Due to a high level of controversy, it has been concluded in Modern Medicine that "Except in situations where there are specific indications for intervention in pregnant woman's dietary habits, perhaps her appetite may well be the best guide to her requirements" (35).

In contrast, diet in pregnancy is meticulously stipulated in Persian medicine. A typical regimen in this medicine would provide a list of recommended foods and foods to be avoided. On the other hand, in the Iranian Traditional Medicine (ITM) people are given recommendations based on their temperament (*mizaj*) which is the basis for practice in this field. Moreover, it can be argued that diets are individualized and each person receives the most appropriate nutritional and life style advice. Avicenna and Rhazes have delineated special regimens during gestational period for maintaining and improving fetal and maternal health and easier childbirth.

It is notable that many European pregnancy-regimens follow the models of Rhazes and Avicenna, with occasional insertion of passages from Hippocrates Aphorisms (13).

"Nowadays, Nutrition and physical activity behaviors' are key modifiable factors associated with weight related outcomes in pregnancy" (36).

In modern medicine, each kind of sport or activity should be examined for potential risks. Specifically, pregnant women should avoid activities with high risk of falling or abdominal trauma (14).

Physical activities are important for weight loss and prevention of weight gain.

Maternal participation in moderate-intensity physical activity can lead to appropriate fetal growth, reduce frequency of preeclampsia and pregnancy-induced hypertension and improve maternal glucose tolerance (37, 38).

Level of activity, hazardous exposures, and ease of workplace modification is important in pregnancy. Women whose work requires prolonged standing or walking should be monitored carefully throughout pregnancy for evidence of intrauterine growth restriction or symptoms of preterm labor (39).

New research about moderate physical activities and sports in pregnancy confirms the findings of Iranian practitioners.

According to ITM, some limitation in coitus in pregnancy must be considered that is also proven in modern medicine. Some studies have shown an association between frequency of coitus, orgasm and preterm labor. Of course preterm labor and inflammation of the membranes was less common with using condoms. Sexual activity generally declines in the last weeks of pregnancy, making it more likely that a woman in preterm labor might have had recent intercourse compared to those women who give birth at term (35, 40, 41).

"In modern medicine, excessive anxiety and depression in pregnancy has been extensively investigated as a potential maternal risk factor for adverse outcomes for both mothers and their children" (42, 43).

Either depression or anxiety, or both, are associated with increased risk for preeclampsia and could prove harmful through altered excretion of vasoactive hormones or other neuroendocrine transmitters, which in turn may increase the risk for hypertension. Vasoconstriction in preeclampsia may develop early in pregnancy. Indeed, increased uterine artery resistance in maternal anxiety could be a primary manifestation or even the cause of preeclampsia. It is also possible that depression may trigger such vascular changes and eventually induce preeclampsia (43).

According to the principles of Iranian medicine, mental emotional control in pregnancy is very important as it is confirmed by the new findings.

Conclusion

The essential advice by ITM can be included in the recommendations of prenatal care and incorporated to the existing knowledge in order to improve pregnant women's health and wellbeing. Of course optimal results may occur when these recommendations are accompanied by a strong social support program.

Ethical considerations

Ethical issues (Including plagiarism, Informed Consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

Acknowledgments

This study was a part of a postgraduate thesis. The authors would like to thank the following colleagues:

Soodabeh Bioos- Consultant -Researcher, Faculty of Iranian Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran.

Dr. Maryam Taghavi Shirazi- Research Institute for Islamic and Complementary Medicine Iran University of Medical Sciences, Tehran, Iran.

The authors declare that there is no conflict of interest.

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