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A CRITICAL REVIEW ON ARTVARA UPDHATU OF RASA DHATU AND ITS CO-RELATION WITH MENSTRUAL FLUID

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ABSTRACT

Background: According to Ayurveda, the physiological functions of the human body are governed by three elements: Dosha, Dhatu, and Mala. Upadhatu are secondary products derived from Dhatus, playing significant roles in the body's functioning. Artava, or menstrual blood, is an Upadhatu of Rasa Dhatu, essential for female reproductive health. **Aim & Objectives:** This study aims to explore the concept of Artava in Ayurveda, understand its physiological aspects, and compare them with modern scientific views on menstruation. **Methods:** A comprehensive review of classical Ayurvedic texts such as Charaka Samhita, Sushruta Samhita, and modern gynaecological literature was conducted. Relevant research articles were also reviewed to understand the concept of Artava and its physiological significance. **Results:** Artava, derived from Rasa Dhatu, is crucial for female reproductive health and must be Shuddha (pure) for normal embryo formation. The concept of Rajapravrutti (menstrual cycle) in Ayurveda aligns with the modern understanding of the menstrual cycle, highlighting the importance of hormonal regulation and physiological processes. **Conclusion:** Understanding Artava and its physiological aspects from both Ayurvedic and modern perspectives can enhance approaches to female reproductive health. Integrating these views offers a comprehensive understanding and better management of menstrual health.

Keywords: Ayurveda, Artava, Raja, Dhatu, Upadhatu, Menstruation

INTRODUCTION

The concept of Artava (menstrual blood) in Ayurveda is a crucial component in understanding female reproductive health. This ancient science offers a holistic approach to health, integrating physical, mental, and spiritual aspects. Artava, a vital element in Ayurveda, is intimately connected with the overall well-being of women. Similarly, modern science provides a detailed physiological and hormonal perspective on menstruation, emphasizing the cyclical nature of the menstrual cycle and its impact on women's health.[1] This introduction explores the Ayurvedic and modern perspectives on Artava and menstruation, highlighting their significance and interplay.[2]

In Ayurveda, the human body is governed by three primary elements: Dosha (bio-energetic forces), Dhātu (tissues), and Mala (waste products). These elements maintain the body's balance and health. Among these, Dhatus are the structural entities that form the body's basic tissues. There are seven Dhatus: Rasa (plasma), Rakta (blood), Mamsa (muscle), Meda (fat), Asthi (bone), Majja (marrow), and Shukra (reproductive tissue). Artava is considered an Upadhatu (sub-tissue) of Rasa Dhātu.[3]

Artava is formed from the essence of Rasa Dhātu. According to Ayurvedic texts like Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya, Artava accumulates in the Garbha Koshtha (uterus) and is expelled monthly.[4] This process, known as Rajapravrutti, is essential for the maintenance of female reproductive health.

Artava is described as having distinct characteristics:

- **Varna (Color):** Shuddha Artava (pure menstrual blood) is likened to the color of rabbit's blood or lac juice. Acharya Charaka describes it as resembling the color of Gunja fruit.[5]
- **Gandha (Odor):** Shuddha Artava is odorless (Nirgandha).[6]
- **Sparsha (Touch):** It has a smooth and slippery texture (Picheel).[7]

The proper functioning of Artava is crucial for reproductive health. Any imbalance or impurity in Artava can lead to various gynecological issues and impact a woman's overall

health. The Ayurvedic understanding of Artava emphasizes its role in the reproductive system and its connection to the body's overall balance.

Artava is discharged once a month in women of reproductive age, typically lasting for 3 to 5 days. This cyclical process begins at menarche (the onset of menstruation) and continues until menopause (the cessation of menstruation). According to Ayurvedic principles, the regular discharge of Artava is a cleansing process that helps maintain the body's balance and health.

The process of Rajapravrutti involves the coordination of various physiological and hormonal functions. It is influenced by the balance of Doshas (Vata, Pitta, and Kapha) and is considered a reflection of the overall health and well-being of a woman. Any disruption in the regularity or characteristics of Artava can indicate an imbalance in the body and requires attention and correction through Ayurvedic therapies and lifestyle adjustments.[8]

Modern Perspective

In modern science, menstruation is understood as a complex physiological process regulated by the hypothalamic-pituitary-ovarian (HPO) axis. This intricate system involves the interplay of hormones such as gonadotropin-releasing hormone (GnRH), follicle-stimulating hormone (FSH), luteinizing hormone (LH), estrogen, and progesterone. The menstrual cycle is divided into several phases: menstrual, follicular, ovulatory, and luteal.[9]

Phases of the Menstrual Cycle [10]

1. **Menstrual Phase:** This phase marks the beginning of the menstrual cycle, characterized by the shedding of the uterine lining (endometrium). It typically lasts for 3 to 5 days, during which menstrual blood is expelled from the body.
2. **Follicular Phase:** Following menstruation, the follicular phase begins. FSH stimulates the growth of ovarian follicles, each containing an egg. One follicle becomes dominant, and the others regress. This phase is marked by the gradual increase in estrogen levels, which promote the thickening of the endometrium in preparation for potential pregnancy.

3. **Ovulatory Phase:** Mid-cycle, a surge in LH triggers ovulation, the release of the mature egg from the dominant follicle. This egg travels down the fallopian tube, where it may encounter sperm and become fertilized.
4. **Luteal Phase:** After ovulation, the ruptured follicle transforms into the corpus luteum, which secretes progesterone. Progesterone maintains the thickened endometrium, making it suitable for implantation if fertilization occurs. If pregnancy does not occur, the corpus luteum degenerates, progesterone levels drop, and the menstrual cycle begins anew with the shedding of the endometrium.

The hormonal regulation of the menstrual cycle is crucial for its proper functioning. Any imbalance in hormone levels can lead to menstrual irregularities and associated health issues. Estrogen and progesterone play pivotal roles in regulating the menstrual cycle, maintaining the endometrium, and preparing the body for potential pregnancy.[11]

- **Estrogen:** Produced primarily by the ovaries, estrogen is responsible for the growth and development of the endometrium during the follicular phase. It also stimulates the production of secondary sexual characteristics and maintains bone density.
- **Progesterone:** Secreted by the corpus luteum, progesterone stabilizes the endometrium, making it suitable for embryo implantation. It also regulates the immune response and maintains pregnancy in its early stages.

Impact of Menstrual Health on Overall Well-being [12]

Menstrual health is a crucial indicator of a woman's overall health and well-being. Regular menstrual cycles reflect the proper functioning of the reproductive system and hormonal balance. Conversely, menstrual irregularities can signify underlying health issues such as polycystic ovary syndrome (PCOS), endometriosis, thyroid disorders, and stress-related conditions.

Modern gynecology emphasizes the importance of understanding the menstrual cycle and its variations to diagnose and treat reproductive health issues effectively. Regular monitoring of menstrual patterns, hormonal assessments, and lifestyle modifications are essential for maintaining optimal menstrual health.

AIMS AND OBJECTIVES

- To study the concept of Artava as per Ayurveda.
- To explore the physiological aspects of Artava from Ayurvedic and modern perspectives.

MATERIAL AND METHODS

1. Classical Ayurvedic texts such as Charaka Samhita, Sushruta Samhita, and others were referred to understanding Artava.
2. Modern gynecological textbooks and research articles were reviewed to compare and contrast with Ayurvedic concepts.

Review of Literature (Concept of Artava)

Formation of Artava

In Ayurveda, Artava (menstrual blood) is a crucial component of female reproductive health and is derived from Rasa Dhatu, the primary essence that nourishes all body tissues. The formation of Artava is a complex process that begins with the digestion and assimilation of food, leading to the production of Ahara Rasa (nutrient fluid). This nutrient fluid, or Ahara Rasa, circulates throughout the body, providing nourishment to each Dhatu (tissue) sequentially. When Ahara Rasa reaches the Rasa Dhatu, it undergoes further refinement and processing, ultimately contributing to the formation of various bodily substances, including Artava.[13]

The transformation from Ahara Rasa to Artava involves several stages:

1. **Digestion and Formation of Ahara Rasa:**[14]
 - **Digestion:** The process begins with the ingestion and digestion of food, which is broken down in the gastrointestinal tract. The digested food is then absorbed and converted into a nutrient fluid called Ahara Rasa.
 - **Assimilation:** Ahara Rasa is assimilated into the bloodstream and distributed throughout the body to nourish the Dhatus (tissues) in a specific order: Rasa, Rakta, Mamsa, Meda, Asthi, Majja, and Shukra.
2. **Nourishment of Rasa Dhatu:**[15]

- **Primary Nourishment:** As Ahara Rasa reaches the Rasa Dhatu, it provides primary nourishment, supporting the plasma and lymphatic systems. Rasa Dhatu is responsible for maintaining the fluid balance and transportation of nutrients to other tissues.
- **Transformation:** Within the Rasa Dhatu, a portion of the nutrient fluid is refined and transformed into Rakta (blood), which then circulates to nourish the body further.

3. **Formation of Artava:**[16]

- **Processing in the Uterus:** The refined nutrient fluid, now part of the Rakta Dhatu, accumulates in the uterus (Garbha Koshtha). According to Acharya Vagbhata, Artava is the blood that specifically collects in the uterus and is discharged monthly as part of the natural menstrual cycle.
- **Cleansing Process:** This monthly discharge is essential for the natural cleansing process, helping to expel impurities and maintain the health of the reproductive system. The cyclical nature of Artava aligns with the lunar cycle, emphasizing its periodic occurrence and the synchronization with natural rhythms.

Characteristics of Shuddha Artava [17]

Shuddha Artava, or pure menstrual blood, is described with specific characteristics in Ayurvedic texts. These characteristics are essential for ensuring reproductive health and overall well-being. The purity and normalcy of Artava are indicated by its color, odor, and texture, which are carefully detailed by ancient Ayurvedic scholars.

1. **Varna (Color):**[18]

- **Description by Acharya Sushruta:** According to Acharya Sushruta, Shuddha Artava should have the color of "Laksha rasa" or "Sashaka asruka" (blood of a rabbit). This description emphasizes a bright red color, which signifies healthy and pure menstrual blood.

- **Description by Acharya Charaka:** Acharya Charaka adds that Shuddha Artava resembles the color of Gunja fruit (red berries). This further reinforces the idea that normal menstrual blood should be vibrant red, indicating good health and the absence of impurities.
- **Significance:** The bright red color of Shuddha Artava indicates proper nourishment and a well-functioning reproductive system. Any deviation from this color, such as dark brown or pale blood, may suggest an imbalance or underlying pathology.

2. **Gandha (Odor):**[19]

- **Nirgandha (Odorless):** Shuddha Artava is described as "Nirgandha" (odorless). The absence of any foul smell is a marker of its purity and normalcy.
- **Significance:** The presence of a foul or unusual odor in menstrual blood can indicate an infection or other health issues. Odorless menstrual blood suggests that the reproductive system is healthy and free from contamination.

3. **Sparsha (Touch):** [20]

- **Picheel (Slippery):** Shuddha Artava is described as "Picheel" (slippery). This texture indicates the proper consistency of menstrual blood, which should be neither too thick nor too thin.
- **Significance:** The slippery texture of Shuddha Artava ensures that menstrual blood flows smoothly and is expelled effectively from the body. If the blood is too thick or clotted, it may indicate hormonal imbalances or other reproductive health issues.

Importance of Shuddha Artava[21]

Maintaining the purity and normalcy of Artava is crucial for reproductive health. Shuddha Artava ensures that the endometrial lining is properly formed and shed, which is essential for creating a healthy environment for embryo implantation and development. Any

deviations in the characteristics of Artava can lead to menstrual disorders, fertility issues, and other gynecological problems.

Implications of Ashuddha Artava [22]

Impure or abnormal Artava can manifest in various ways, including changes in color, odor, and consistency. These deviations can indicate underlying health issues that require attention and treatment. Ayurvedic practitioners use these characteristics to diagnose and manage menstrual and reproductive health problems, employing therapies and lifestyle modifications to restore balance and promote overall well-being.

Physiological Role of Artava [23]

Artava plays a vital role in female reproductive health. Its monthly discharge is crucial for the cleansing and renewal of the uterine lining, preparing the body for potential conception. The regularity and quality of Artava are indicators of a woman's overall health and reproductive capability.

The physiological functions of Artava include:

1. **Cleansing:** The monthly expulsion of Artava helps remove impurities and maintain the health of the reproductive system.
2. **Reproductive Health:** Proper formation and discharge of Artava are essential for creating a healthy environment for embryo implantation and development.
3. **Hormonal Balance:** The regular menstrual cycle reflects the balance of Doshas and hormones, indicating a harmonious state of health.

Modern Concept of Menstruation [24]

In modern medicine, menstruation is understood as a complex physiological process involving the cyclic shedding of the uterine lining (endometrium). This process is regulated by the hypothalamic-pituitary-ovarian (HPO) axis, an intricate hormonal system that ensures the proper functioning of the female reproductive system.

Phases of the Menstrual Cycle [25]

The menstrual cycle is a complex process that prepares the female body for pregnancy. It is typically divided into four main phases: menstrual, follicular, ovulatory, and luteal. Each phase is characterized by specific hormonal changes and physiological processes that ensure the proper functioning of the reproductive system.

1. **Menstrual Phase:** [26]

- **Duration:** The menstrual phase marks the beginning of the menstrual cycle and typically lasts 3 to 5 days, but it can range from 2 to 7 days in some women.
- **Process:** During this phase, the endometrial lining, which had thickened in preparation for a potential pregnancy, is shed if fertilization has not occurred. The shedding involves the expulsion of blood, mucus, and cellular debris through the vagina.
- **Hormonal Changes:** The levels of estrogen and progesterone drop significantly, leading to the breakdown of the endometrial lining. This drop in hormones also signals the hypothalamus to release gonadotropin-releasing hormone (GnRH), which stimulates the pituitary gland to produce follicle-stimulating hormone (FSH).
- **Physiological Effects:** Women may experience menstrual cramps (dysmenorrhea) due to uterine contractions that help expel the endometrial tissue. Other symptoms can include bloating, breast tenderness, mood swings, and fatigue.

2. **Follicular Phase:** [27]

- **Duration:** The follicular phase begins after the menstrual phase and lasts until ovulation, typically covering days 1 to 14 of a 28-day cycle.
- **Process:** The pituitary gland secretes FSH, which stimulates the growth of ovarian follicles. Each follicle contains an immature egg. Several follicles begin to develop, but usually, only one becomes dominant and continues to mature.
- **Hormonal Changes:** As the follicles develop, they produce increasing amounts of estrogen. Estrogen levels rise, causing the endometrial lining to thicken and regenerate in preparation for potential embryo implantation.

- **Physiological Effects:** The rising estrogen levels can improve mood and energy levels. Some women may also notice an increase in cervical mucus, which becomes thinner and more slippery to facilitate sperm movement.

3. Ovulatory Phase: [28]

- **Duration:** The ovulatory phase is a short phase, typically occurring around day 14 of a 28-day cycle.
- **Process:** A surge in luteinizing hormone (LH) triggered by the pituitary gland causes the dominant follicle to release a mature egg from the ovary. This process is known as ovulation.
- **Hormonal Changes:** The LH surge is the key hormonal event of the ovulatory phase. Estrogen levels peak just before the LH surge, and progesterone levels start to rise following ovulation.
- **Physiological Effects:** During ovulation, some women may experience mild pain or discomfort on one side of the lower abdomen (mittelschmerz). The cervical mucus becomes even more slippery and stretchy, resembling raw egg whites, to aid sperm movement. Basal body temperature may also rise slightly after ovulation.

4. Luteal Phase: [29]

- **Duration:** The luteal phase lasts from ovulation until the beginning of the next menstrual cycle, typically around 14 days.
- **Process:** After releasing the egg, the ruptured follicle transforms into the corpus luteum, a temporary gland that secretes progesterone and some estrogen. Progesterone prepares the endometrium for possible implantation of a fertilized egg and maintains it during the early stages of pregnancy.
- **Hormonal Changes:** Progesterone levels rise significantly during the luteal phase, causing the endometrium to thicken further and secrete nutrients to support a potential embryo. If fertilization and implantation do not occur, the corpus luteum degenerates, leading to a drop in progesterone and estrogen levels.

- **Physiological Effects:** The decline in progesterone and estrogen levels signals the body to start a new menstrual cycle. Premenstrual symptoms (PMS) such as bloating, breast tenderness, mood swings, and fatigue may occur due to the hormonal fluctuations. If implantation occurs, the corpus luteum continues to produce progesterone until the placenta takes over hormone production.

Hormonal Regulation and Interplay [30]

The menstrual cycle is tightly regulated by the hypothalamic-pituitary-ovarian (HPO) axis. This axis involves a complex interplay of hormones that ensures the proper timing and sequence of events during the cycle:

- **Hypothalamus:** The hypothalamus releases GnRH in a pulsatile manner, stimulating the pituitary gland to produce FSH and LH.
- **Pituitary Gland:** FSH promotes the growth of ovarian follicles, while LH triggers ovulation and supports the formation of the corpus luteum.
- **Ovaries:** The ovaries produce estrogen and progesterone, which regulate the growth and shedding of the endometrial lining.

Estrogen and Progesterone Functions [31]

- **Estrogen:** Produced primarily by the developing follicles, estrogen is responsible for the growth and thickening of the endometrium during the follicular phase. It also helps regulate the production of FSH and LH through feedback mechanisms.
- **Progesterone:** Secreted by the corpus luteum after ovulation, progesterone maintains the endometrium and inhibits further ovulation during the luteal phase. It also regulates immune response and supports early pregnancy.

Hormonal Regulation [32]

The menstrual cycle is tightly regulated by hormones, primarily estrogen and progesterone, produced by the ovaries. The HPO axis plays a central role in coordinating these hormonal changes:

- **Gonadotropin-Releasing Hormone (GnRH):** Produced by the hypothalamus, GnRH stimulates the pituitary gland to release FSH and LH.

- **Follicle-Stimulating Hormone (FSH):** FSH promotes the growth of ovarian follicles, each containing an egg. As the follicles develop, they produce estrogen.
- **Luteinizing Hormone (LH):** A surge in LH triggers ovulation, releasing the mature egg from the dominant follicle.
- **Estrogen:** Produced by developing follicles, estrogen causes the endometrium to thicken and prepare for potential implantation. It also regulates the levels of FSH and LH through feedback mechanisms.
- **Progesterone:** Secreted by the corpus luteum after ovulation, progesterone maintains the thickened endometrium and inhibits further ovulation during the luteal phase. If pregnancy does not occur, progesterone levels fall, leading to the shedding of the endometrium.

Impact of Menstrual Health on Overall Well-being [33]

Menstrual health is a vital indicator of a woman's overall health. Regular, pain-free menstrual cycles suggest a well-functioning reproductive system and hormonal balance. Conversely, menstrual irregularities can indicate underlying health issues such as polycystic ovary syndrome (PCOS), endometriosis, thyroid disorders, and stress-related conditions.

Common menstrual irregularities include:

- **Amenorrhea:** The absence of menstruation, which can be primary (no menarche by age 16) or secondary (absence of menstruation for three cycles or more in women who previously had regular cycles).
- **Dysmenorrhea:** Painful menstruation, often caused by uterine contractions and associated with conditions like endometriosis or fibroids.
- **Menorrhagia:** Excessive menstrual bleeding, which can lead to anemia and significantly impact a woman's quality of life.
- **Oligomenorrhea:** Infrequent menstruation, typically defined as cycles longer than 35 days.

DISCUSSION

The concept of Artava in Ayurveda provides a holistic view of menstrual health, emphasizing the interconnectedness of bodily processes and the importance of balance for overall well-being. Understanding Artava involves exploring its formation, characteristics, and physiological roles, as well as comparing these insights with modern scientific perspectives on menstruation. This discussion aims to integrate these viewpoints, highlighting the strengths and complementarities of both systems of knowledge.[34]

Artava in Ayurveda [35]

In Ayurveda, Artava is derived from Rasa Dhatu, emphasizing the critical role of nutrition and digestion in reproductive health. The transformation of Ahara Rasa into Artava involves a multi-step process where the nutrient fluid nourishes each Dhatu sequentially, ultimately contributing to the formation of menstrual blood. This perspective underscores the importance of a balanced diet and healthy digestive system in maintaining menstrual health.

The characteristics of Shuddha Artava—its color, odor, and texture—serve as vital indicators of a woman's reproductive health. Bright red, odorless, and slippery menstrual blood signifies a well-functioning system free from impurities. Any deviation from these characteristics can indicate imbalances or pathologies, prompting Ayurvedic practitioners to focus on restoring balance through dietary adjustments, herbal remedies, and lifestyle modifications.

Ayurveda views the menstrual cycle as a natural cleansing process, essential for maintaining the health of the reproductive system. The cyclical nature of Artava, aligned with the lunar cycle, reflects the deep connection between human physiology and natural rhythms. This understanding encourages a holistic approach to menstrual health, considering the physical, mental, and emotional aspects of well-being.

Menstruation in Modern Science [36]

Modern science provides a detailed understanding of the physiological and hormonal processes governing menstruation. The menstrual cycle is divided into four phases: menstrual, follicular, ovulatory, and luteal. Each phase is regulated by a complex interplay of

hormones, primarily estrogen and progesterone, orchestrated by the hypothalamic-pituitary-ovarian (HPO) axis.

The menstrual phase involves the shedding of the endometrial lining, while the follicular phase is marked by the growth of ovarian follicles and rising estrogen levels, which thicken the endometrium. The ovulatory phase is triggered by a surge in luteinizing hormone (LH), leading to the release of a mature egg. The luteal phase involves the secretion of progesterone by the corpus luteum, stabilizing the endometrium and preparing it for potential implantation.

Hormonal regulation is central to the menstrual cycle, ensuring the proper timing and coordination of these processes. Disruptions in hormonal balance can lead to menstrual irregularities and associated health issues, such as polycystic ovary syndrome (PCOS), endometriosis, and thyroid disorders. Modern gynecology emphasizes the importance of monitoring hormonal levels and menstrual patterns to diagnose and manage these conditions effectively.[37]

CONCLUSION

The Ayurvedic concept of Artava and the modern understanding of menstruation both provide essential insights into female reproductive health. Ayurveda emphasizes balance, nutrition, and holistic approaches, viewing Artava as a crucial component derived from Rasa Dhatu. It highlights the significance of Shuddha Artava's characteristics—bright red color, odorless, and slippery texture—as indicators of health. Modern science details the menstrual cycle's phases, regulated by hormonal interplay, offering precise diagnostics and treatments for menstrual disorders. Integrating these perspectives fosters a comprehensive approach to menstrual health, combining Ayurvedic holistic methods with modern medical practices. This integration allows for personalized, holistic care, addressing both physical and energetic aspects of menstruation. It enhances health outcomes and empowers women with a deeper understanding of their bodies, promoting overall well-being and quality of life. Emphasizing balance and natural rhythms leads to improved menstrual health, bridging ancient wisdom and modern science for a harmonious approach to women's health.

CONFLICT OF INTEREST -NIL

SOURCE OF SUPPORT -NONE

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