EARLY ONSET OF MENSES

Early Menarche

Occurrence of menstruation in 11 years or less.

⚠️ Risk factor ♂ Female

About Early onset of menses

Early menarche was defined as occurrence of menarche at 11 years of age or less (the average age of menarche right now is around 12 to 13 years). Early menarche is likely the result of multiple influences on early endocrine development. Early onset menstruation, which follows precocious puberty, begins with the hypothalamus.

The early onset of pubertal development is an important medical and social problem, as it may result in increased morbidity and mortality in later life. Age at menarche (AAM) is one of the most significant traits, which is commonly used for retrospective epidemiological studies of female sexual maturation.

There are two major groups of interacting factors, which can influence AAM – genetic (such as the genes involved in estrogen biosynthesis) and nongenetic determinants. The data about the influence of environmental factors on AAM may be summarized using the SWOT (strengths, weaknesses, opportunities, and threats) approach (Pic. 1).

The contribution of genetic factors to AAM is estimated to be about 57–82%. Despite the apparently major role of genetic factors in AAM, environmental factors have gained increased attention, because many of them may potentially be controlled, which, in turn, may increase survival in later adulthood.

Prenatal factors affecting AAM
Maternal AAM
Several morbid conditions related to high estrogen levels in mothers (marked by severe pregnancy-induced nausea) may be predictive for early AAM in daughters.

Maternal weight gain during pregnancy
Endocrine dysfunction during pregnancy may affect hormonal status of a fetus. Increased production of insulin during gestation results in excessive weight gain in the mother, which may cause intrauterine growth restriction and premature puberty.

Environmental hazards exposure during pregnancy
Intrauterine exposure to some endocrine disruptors (a chemicals that, at certain doses, can interfere with endocrine (or hormone) systems) during pregnancy may lead to premature puberty and, as a result, to early AAM of the offspring.

Birth weight
Birth weight is one of the significant factors related to AAM, but biological mechanisms of this relationship are still unclear. Higher birth weight, as well as lower weight for gestational age, may contribute to the early onset of puberty.

Postnatal factors affecting AAM

Body weight, fat distribution and AAM
Basically, there are two weight-related factors associated with AAM: total body weight measured as body mass index (BMI) and various measurements of fat distribution. The majority of the studies corroborated the association between high BMI in infancy, prepuberty, puberty, and earlier AAM.

Psychological factors and their impact on AAM
Family disruption, childhood adversity, and continuous stress may accelerate sexual and reproductive development of girls. Risky behavior, adolescent pregnancy, drug addiction, and early first sexual intercourse may be consequences of family disharmony, especially if it happens during the first 5 – 7 years of life. Single parenting and stressful situation in a family may speed up reproductive maturity of girls.

Father’s absence is one of the most studied psychological factors, which is significantly associated with early puberty of the offspring. In disrupted families, younger sisters attain menarche earlier than the elder ones, because they spend less time with their fathers. Girls at the age between 0 and 5 years seem to be the most sensitive to family composition. Conversely, menarche may be slightly later when a girl grows up in a large family with a biological father present.

Another psychological factor is adverse childhood experience, such as sexual abuse. Life problems in childhood like an alcohol addicted father, mother with nervous troubles, and sexual abuse are strongly
associated with early sexual maturation. Physical abuse can also speed up pubertal development.

In addition to family problems, psychological disorders in early childhood can also affect the onset of menses. All psychological conditions leading to malnutrition, such as anorexia nervosa, affect AAM due to low leptin (a hormone made by adipose cells that helps to regulate energy balance by inhibiting hunger) levels that results in impaired secretion of gonadotropin-releasing hormone (GnRH).

- **Socioeconomic factors and AAM**
  Socioeconomic factors have a significant impact on nutritional and psychosocial status during childhood and adolescence and may influence AAM.

Puberty blockers, also called puberty inhibitors, puberty suppressors, or hormone suppressors, are a group of medications used to inhibit puberty. They were originally used to treat children with precocious puberty or other such early onset of puberty. Puberty blockers slow the growth of sexual organs and production of hormones. Most girls who have early puberty do not need treatment.

**Symptoms**

- headaches
- moodiness
- abdominal cramping
- food cravings
- acne
- premature intercourse
- anxiety symptoms
- depression
- violent behavior

**Associated diseases**

- endometriosis
- polycystic ovary syndrome
- ovarian cancer
- uterine fibroids
- menstrual cycle disorders
- breast cancer
- endometrial cancer
- hypertension
- type 2 diabetes
- eating disorders

**Complications**

Earlier pubertal onset has been associated with increased anxiety as well as
concerns with body shape, weight and the development of eating disorders. Moreover, in the absence of psychosocial maturity, exploratory behaviours that mark early adolescence may result in uninformed risk-taking behaviours.

Early maturers are more likely to adopt deviant behaviours including, for example, increased use and dependence on alcohol. In girls, such effects may result from association with deviant peers, older individuals and boyfriends. Mature appearance in girls at age 13 has also been related to a greater number of sexual partners by age 16 years. A high rate of partner change is associated with subsequent increased risks of sexually transmitted infections and early sexual initiation is associated with teenage pregnancy.

There is an association between early menarche and sexually transmitted infections. For example, among those with early menarche was associated with Chlamydial infection and human papilloma virus among sexually active adolescents.

Early menarche also is correlated with cardiovascular risk in adulthood and represents a significant risk for breast cancer.

Risk factors

A risk factor for early menarche can be childhood sexual abuse. The adverse impacts of biological father absence and the presence of non-related males in the home.

Prevention

The most important part of a child's psychosocial environment is the family.

Factors associated with early menarche highlight the need to focus attention on early-matured girls to prevent further health problems linked to risk behaviours.

Physical activity may also be an effective way of preventing symptoms, and it has been shown to improve quality of life in women.

Another possible prevention of causes associated with early onset of menses is hormone replacement therapy. Hormone replacement therapy (HRT) is any form of hormone therapy wherein the patient, in the course of medical treatment, receives hormones, either to supplement a lack of naturally occurring hormones, or to substitute other hormones for naturally occurring hormones. Hormone replacement therapy's goal is to mitigate discomfort caused by diminished circulating estrogen and progesterone hormones. The
main hormones involved are estrogen, progesterone and progestin.

How it can affect fertility

Experience shows that the treatment of children with precocious puberty using a puberty blockers not interfere with normal fertility.

An early puberty usually means a late menopause. In some women, menopause may bring about a sense of loss related to the end of fertility. During menopause with decline in ovarian function, thereby reducing the production of the hormones estrogen and progesterone. It stops the menstrual cycle and fertility loss is occurring - the woman is unable to conceive.

Prognosis

Women who experienced earlier menarche reported a younger preferred age to have a first child and showed stronger masculinity preferences. This provides evidence that women experiencing early menarche not only have children earlier but notably plan to have children earlier. Age of menarche influences partner selection, which is instrumental for the implementation of reproductive strategies.

As indicated above, early onset of menses is associated with the onset of menopause. Although menopause known as the end of the female reproductive period, fecundation not disappearing suddenly, but decreases gradually over time.

Find more about related issues

Diagnoses

Endometriosis
A state in which pieces of the tissue alike to the lining of the uterus (endometrium) grow in other parts of the body.
Learn more at: www.fertilitypedia.org/therapy/diag/endometriosis
**Menstrual cycle disorders**
An abnormal condition in a woman's menstrual cycle.
Learn more at: [www.fertilitypedia.org/therapy/diag/menstrual-cycle-disorders](http://www.fertilitypedia.org/therapy/diag/menstrual-cycle-disorders)

**Ovarian cancer**
A type of cancer in which abnormal cells begin to grow in one or both of a woman’s ovaries.
Learn more at: [www.fertilitypedia.org/therapy/diag/ovarian-cancer](http://www.fertilitypedia.org/therapy/diag/ovarian-cancer)

**Polycystic ovary syndrome**
A condition in which a woman has an imbalance of female sex hormones. This may lead to changes in the menstrual cycle, cysts in the ovaries, trouble g
Learn more at: [www.fertilitypedia.org/therapy/diag/polycystic-ovary-syndrome](http://www.fertilitypedia.org/therapy/diag/polycystic-ovary-syndrome)

**Uterine fibroids**
The most common benign smooth muscle tumors of the uterus encountered in women of reproductive age.
Learn more at: [www.fertilitypedia.org/therapy/diag/uterine-fibroids](http://www.fertilitypedia.org/therapy/diag/uterine-fibroids)

**Strengths, weaknesses, opportunities, and threats for studies on the nongenetic factors affecting AAM.**

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<thead>
<tr>
<th>Strength</th>
<th>Weakness</th>
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<tr>
<td>(1) The large number of studies for the genetic and non-genetic factors affecting AAM</td>
<td>(1) Limited evidence for longer follow-up</td>
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<td>(2) Studies of different studies are often inconsistent</td>
<td>(2) Limited evidence for different methods</td>
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<td>(3) Larger sample sizes and longer follow-up are needed</td>
<td>(3) Limited evidence for different populations</td>
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<td>(4) Limited information on non-genetic factors</td>
<td>(4) Limited evidence for different interventions</td>
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**Opportunity**
- Large-scale collaborative studies

**Sources**
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