Minireview Article

PHYSICAL AND EMOTIONAL REPERCUSSIONS OF PREGNANCY DURING ADOLESCENCE

Abstract

Adolescence is a phase marked by physical, emotional and, social changes culminating with sexual development and final adult height, which occur at different stages during the second decade of life. Due to their characteristics of immaturity, impulsiveness, and tendencies to take risky behaviors with sexual activity starting earlier, adolescents are subject to becoming pregnant during the first years after menarche.This article presents some characteristics of the adolescent's growth and development and the repercussions of pregnancy on her physical growth and emotional maturity.

Keywords: Adolescent – Adolescent pregnancy – Adolescent growth – Adolescent development

Introduction

Adolescence is a phase marked by physical, emotional and, social changes culminating with sexual development and final adult height, which occurat different stages during the second decade of life, incorporating social independence, identity development, acquisition of skills necessary for relationships and adult roles and abstract reasoning ability [1].Due to their emotional immaturity, some characteristics, such as the search for immediate pleasure, impulsiveness and the need to try the new, make the adolescent subject to engage in risky behaviors, with unprotected sexual activity being one of the most frequent[2].

According World Health Organization currently there are 1.2 billion individuals in the world between the ages of 10 and 19, approximately 600 million of whom are women. Each year, at least 10 million unintended pregnancies occur each year among adolescent girls aged 15 to 19 years in developing countries[3]. Globally, 2,5 million girls aged under 16 years give birth each year, most living in developing regions, which highlights a major public health problem as these adolescents are still in full growth and development and, obviously, not fully prepared for pregnancy [4].

Adolescent development

The most outstanding event of female puberty is the menarche (first menstrual period of women), which in addition to having a social and symbolic connotation, marks the girl's transition into adulthood.Within the broad context of adolescence, the phenomenon of puberty stands out as the event responsible for major physical changes, notably the full development of the reproductive system and which will lead the individual to his physical constitution as an adult [1,5].

The puberty is a maturational and hormonal event marked by both gonadotrophic and somatotrophic processes in which growth acceleration, development of organs and systems and changes in body composition are observed, including onset of ovulation and

spermatogenesis, with intense participation of the insulin-like growth factor 1 (IGF-1) and growth hormone (GH), which exert direct action on bones and cell proliferation[6].

The growth and maturity of the female body are directly related to several hormonal changes driven by activation of the hypothalamic-pituitary-adrenal-gonadal axis (mainly pubertal sex hormones and growth hormone, responsible for the increase of the skeleton and sexual maturation) that can start at 8 years of age and extend until 19 years, coinciding with the closing of the cartilages of conjugation of the epiphysis of long bones, which determines the end of skeletal growth and reached the final height, body composition changes, and full reproductive capacity. Although the peak in growth velocity characteristic of adolescence is reached before menarche, girls continue to grow thereafter and on average gain a further 7 cm in height before linear growth ceases [7-9].

Adolescent pregnancy

Human pregnancy is characterized by profound anatomic and physiologic changes that affect virtually all systems and organs in the body. Many of these changes begin in early gestation making this period a special biological and social time for woman with lifelong implications when occur physiological changes to accommodate the growth and development of the fetus as well as maternal body composition. During pregnancy the maternal organism undergoes changes in its hormonal physiology due to the increase in hormones like human chorionic gonadotropin, cortisol, estrogen, progesterone and prolactin, that maintains the gestation process in an organism that has not yet reached its full stage of development [10,11].

Pregnancy represents several simultaneous challenges for an adolescent, that is, her own evolving adolescence, the pregnancy and new roles that must be assumed in the family context. Both from a physiological and emotional point of view, the changes in pregnancy are superimposed on those of pubertal evolution and, therefore, it is difficult for her to meet all

these new demands [12]. In addition to various clinical conditions with risks to physical health (abnormal maternal weight gain, pregnancy-induced hypertension, anemia, lung and renal disease, puerperal endometritis, systemic infections, and some adverse pregnancy outcomes such as low birth weight, and preterm delivery), pregnant adolescents may experience stigma and discrimination and face challenging social conditions such as school dropout and economic dependence, with consequences that can last throughout their lives[4,13,14].

In addition, pregnancy is responsible for a state of tension due to expectations of the changes that are and will continue to occur, causing changes in body size, distortion of body self-image and self-esteem, and organic and emotional needs to be met.

Adolescent nutrition

Due to their diverse characteristics, adolescents can be considered nutritionally vulnerable. Since it is a period of rapid growth, adequate nutrition is crucial for achieving full growth potential, and failure to achieve optimal nutrition may lead to delayed and stunted linear growth and impaired organ remodeling [1,15,16].

The pubertal spurt causes a considerable increase in the need for energy and various nutrients. Approximately 20% of height and 50% of adult weight are gained during 4 or 5 years of puberty, since the growth in adolescence implies the expansion of tissues and organs with special nutrient needs, including amino acids for muscle growth, calcium and vitamin D to accommodate bone growth, iron for hemoglobin formation and enough energy to supply the metabolic needs and daily physical activities.Nutrition in pregnant adolescent is fundamental because their bodies are not physically ready for pregnancy and there is an increased competition for nutrients with the fetus [17]. Therefore, nutrient needs during pregnancy are higher relative to other physiological stages in life cycle, and pregnant adolescents are at higher risk for becoming stunted. Adolescents are likely to exhibit food preferences and eating

behavior that can result in por intake of iron, zinc, folate, calcium, vitamins, and high consume of sugar, saturated fat, and processed meals [4,18-21].

Adolescent growth

The adolescent's energy needs increase from 2000 Kcal/day at the end of childhood to 2500 Kcal/day at the age of 18, which must be offered by a balanced diet that consists of 50% carbohydrates, 35% fats and 15% protein with high biological value. When the energy needs are not met, adaptive hormonal changes occur in order to direct the metabolism and energy consumption to guarantee survival, thus observing a decrease in the concentrations of IGF-1 and the binding capacity of the growth hormone with the your liver receptor.The GH/IGF axis is sensitive to less severe and transient nutritional restriction [22].

Adolescent girls often enter pregnancy with inadequate nutritional stores, and pregnancyleads to competition for dietary energy and nutrients between the fetus and the mother. Therefore, as competition for nutrients between mother and fetus in pregnancies occurs whenmothers are still growing, pregnancy may limit maternal growth [7,23,24].Many adolescents have poor diet quality and poor knowledge of appropriate nutrition; these habits may not change during pregnancyas reduce ingestion of milk and dairy products, and increased soft drinks consumption which has contributed to poor calcium intake [4,25,26].

Calcium intake, particularly during growth, is an important determinant of bone mineralization and thus bone density (Lenders). In its turn, pubertal period is a time for bone acquisition because bone mass is increasing during adolescence [27,28]. For linear growth to occur properly it is necessary for the diet to offer 1300 mg of calcium daily, which can be obtained from dairy products, mainly milk, green leafy vegetables, fish, and nuts [29]. During gestation there is an increased need for calcium in the mother to meet fetus' calcium requirements. Adequate calcium intake during pregnancy is of major importance for the health of both mother and fetus because fetal growth places high demands on maternal calcium status[30].

In addition to urinary loss of around 600 mg/day, calcium from the maternal circulation is actively extracted by the fetus, totaling between 25 and 30 grams during the entire gestational period[31]. Therefore, the endocrine and metabolic changes which occurs during pregnancy (increased intestinal calcium absorption and calcium absorption from bones) result in effects on the skeleton and may negatively affect bone accrural[32]. All these changes can compromise the adolescent's growth during pregnancy [4].The bone density appears to increase in both axial and appendicular sites and the matrix must then be mineralized. Nearly 40% of peak bone mass is attained during puberty [27, 33]. When calcium availability in insufficient maternal bones mineral metabolization mobilizes calcium from mother's skeleton, creating a maternal-fetal competition [29]between the still growning mother and her fetus [4].

Adolescent body image and self esteem

Body image is the subjective image of individuals of their own body, regardless of the body's appearance, that comprises thoughts, feelings, assessments, and behaviors related to a person's body. Misperception of body image is a central component of several serious illnesses and can affect physical and psychological health and influence self-esteem, mood, competence, social, functioning, and occupational functioning[34].

Adolescence is a critical period in body image development. Relationships between adolescents and society have a significant impact on the development of adolescent body dissatisfaction.Body image is highly related to an individual's self-esteem and self-concept. Self-esteem can be a potential factor that reduces the possibility of negative feelings and attitudes in everyday life, allowing the adolescent to develop his activities in accordance with his physical and emotional needs[35,36].

Pregnant adolescent is more susceptible to body image distortion [37].During their growth and development, adolescents idealize a body in the elaboration of self-image and acquisition of self-esteem, greatly influenced by the behaviors and attitudes disseminated by the media. As

they are still in the process of emotional maturation, it is difficult to understand that their reality is not always in accordance with current standards, creating difficulties to structure their personality and adjust to new social demands[38].

The changes that occur in the body of a pregnant woman (weight gain, greater deposition of fatty tissue, posture to adopt a new balance center, stretch marks, etc.) can lead the adolescent to experience low self-esteem, lack of confidence, fragility, social isolation , fear and depression[39]. This can be aggravated by the lack of family support, of the partner and friends, since the demands of a pregnant teenager cannot always be to follow the activities of the other adolescents with whom she was related[40,41].

Conclusion

Adolescent is a person considered physically, emotionally, and socially vulnerable. Adolescent pregnancy is a public health problem with medical, social, and emotional repercussions for adolescent mother, child, family, and society. In addition, nutritional deficiencies, and suboptimal linear growth in adolescence, leading to a low adult height, are poorly recognized problems.Therefore, delaying marriage and pregnancy beyond adolescence improves maternal health and birth outcomes. For this, actions are needed to prevent pregnancy during the adolescent's development period, through educational guidelines and health promotion programs, associated with improvements in the social conditions of the most vulnerable populations [42].

Delay in first pregnancy after adolescence and increased spacing after birth can provide adolescent girls with an opportunity for linear growth and emotional development [24].It is essential to know the nutritional and emotional needs of pregnant adolescents to provide optimal care, as the adolescents most likely to become pregnant are generally those with inadequate nutritional status and unfavorable socioeconomic conditions

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