UNIT NO. 6B

DEVELOPMENTAL ISSUES IN THE ADOLESCENT MALE

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ABSTRACT

Puberty and adolescence represent a transitional phase from childhood to adulthood, and are defined by the attainment of secondary sexual characteristics and reproductive capability, occurring concomitantly with psychological and social development. The perils of puberty in the male lie in the inter-relationships of biological, psychological and social changes, as the adolescent boy strives to adjust to new social roles and identities, and new reproductive capabilities.

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INTRODUCTION

Adolescence is a biopsychological maturational process, and includes the biological changes of the completion of linear growth and sexual maturation, and the accretion of peak bone mass. Puberty is defined as the attainment of secondary sexual characteristics and reproductive capability, and occurs alongside rapid psychological and social development during early and mid-adolescence.

The timing and tempo of biological, psychological and social development each proceed independently. Timing (when the elements begin) and tempo (the pace of puberty) may vary between individuals, in both pubertal and psychosocial development. When looking after adolescent boys, it is important for clinicians to understand the normal changes of puberty and to anticipate the changes and perils associated with puberty. These will be considered under 3 main areas:

A. Physical and hormonal changes
B. Sexuality
C. Emotional and psychosocial changes

A. PHYSICAL AND HORMONAL CHANGES

While the exact trigger of puberty is still being researched at a genetic and molecular level, the physical changes of puberty can be considered as a re-emergence of gonadotropin secretion from a period of relative quiescence in childhood. The cascade of pituitary-gonadal maturation is initiated by a nocturnal sleep-related augmentation of gonadotropin secretion in pulse amplitude and frequency, with a resultant rise in gonadal sex steroids.

There is a wide variation in the age of onset and duration of puberty. The onset of puberty for normal male puberty in developed countries ranges from 9 to 14 years, although the age of puberty has decreased dramatically in most developed countries during the first half of the twentieth century due to better nutrition.

Physical growth involves an interaction between the body's endocrine and skeletal systems. During puberty in males, the main hormones which influence growth are growth hormone and testosterone, both of which participate in the pubertal growth spurt. A few facts regarding puberty in boys:

- The average age for the commencement of an increase in height velocity is 11 years.
- The peak height velocity occurs at a mean age of 13.5 years.
- Pubertal growth accounts for approximately 20% of final height, averaging 26 to 28 cm in males.
- The average growth spurt lasts 24 to 36 months.
- Males are 12 to 13 cm taller than females on the average, primarily because of the 2-year delay in bone closure, and secondarily from the increased magnitude of the male growth spurt of 2 to 3 cm.

However, the main changes which occur during adolescence are the secondary sexual characteristics. Tanner et al devised the sexual maturity ratings (SMR) for puberty, ranging from stage 1 (pre-pubertal) to stage 5 (fully pubertal). For males, this is based on the testicular volume, which can be gauged from an instrument called the orchidometer, the appearance of the scrotum and phallus, and the pubic hair.

Male sexual development begins at an average age of 11.6 years, with testicular volumes of 4 mls. In Singapore, the median age of a testicular volume of 4 ml was 11 years. Spermarche, the onset of sperm emission, indicates the establishment of spermatogenesis. The median age of occurrence is 13.4 years, with an average testicular volume of 11.5 ml. The average age of completion of puberty is 3 years. A boy's first ejaculate is a noteworthy experience, and has the same biological significance as a girl's first menstrual period.

'Wet dreams' are used to describe the ejaculation of semen during sleep. This release of semen is involuntary, and normal. While not all boys have this experience, those who do may find it embarrassing. Men produce sperm cells constantly, and this is one way that the body has of releasing stored semen to make way for new supplies. Sperm are actually present in enormous numbers from the very first ejaculation, even though they make up only a small fraction of the volume. There have been many reported cases of pregnancy occurring where the male partner was of a tender age. However, a boy's virility is often related to the size and development of his penis. This

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is quite variable, and has no bearing on adequate functioning, which is generally the underlying concern.

The physical and hormonal changes which adolescents undergo, can result in tremendous concern and anxiety, and can be considered as one of the many perils of puberty. Many adolescents worry whether their bodies are normal. The anxieties and sensitivities are often heightened by the wide variation in timing of puberty, with resultant differences in physical maturity of similar-aged adolescents. Health care workers counseling adolescents must understand the changes in variations of normalcy, and be equipped with the insights and skills to detect the adolescent concerns about their physical changes, even if their concerns are not initially overtly stated. It is essential to sense the profound effects which these changes may have on some adolescents, and to provide the reassurance or help depending on whether the changes are within or outside normal standards of variation.

B. SEXUALITY

Many developments in sexual behaviour accompany the development of reproductive capacity during adolescence. Gender identity, the sense of being male or female, develops in very early childhood, largely under the influence of social cues with an uncertain contribution from biology. During adolescence, sexual drives and behaviours increase dramatically, driven by both biological libido (resulting from the hormones of puberty) and socially generated motivation (in which social influences specify the rewards of sex and to whom they apply).

A common concept is 'the raging hormones' of puberty driving irresistible sexual urges and aggressive behaviour during adolescence. In fact, the extent to which increasing hormone levels drive sexual behaviour is uncertain. There is some evidence that pubertal development and hormone levels drive sexual initiation, particularly in males. However, the average age of initiation of intimate sexual behaviours differs dramatically between countries and cultural groups illustrating that social factors (acceptability of sexual behaviour before marriage) and psychological factors (gender orientation, confidence, sense of attractiveness) are more important than mere hormone levels.

It is important to note that sex hormones have little relationship to gender orientation or identity. Homosexual exploration is frequent in early adolescents, and has no relationship with sex hormone levels. Similarly, no hormonal abnormalities have been found in young people with Gender Identity Disorders, or transgendered people.

C. EMOTIONAL AND PSYCHOSOCIAL ADAPTATIONS

Psychological changes in thought patterns and cognitive ability are driven by increasing maturation and myelination of the adolescent brain. Between the ages of 6 to 11 years, boys generally think concretely, understanding only the immediate and short-term consequences of actions or events. Ideas and concepts can only be manipulated through using concrete representations. From 12 years onwards, thought patterns begin to change to formal operational or abstract thought, the ability to manipulate ideas rather than things, imagine the future, and conceive of multiple outcomes of actions. These capacities are important for the development of a settled personal and sexual identity. These cognitive changes, like the hormonal changes of puberty, are universal to all races and cultures.

In contrast, most of the social development are culture specific, varying with social and cultural norms regarding the roles of children and adults in society. The essential social tasks of adolescence are developing personal identity, moving from dependence to independence, and developing mature relationships with peers. These challenges exist across all cultures; however, the timing of changes and the point at which successful completion is expected, varies greatly between cultures.

Increasing hormone levels during puberty may influence areas of behaviour outside of sexual behaviour. The evidence for this is particularly strong for aggression in relation to testosterone in boys. Hence, mental health and behaviour during adolescence are partly influenced by the changing hormonal milieu. The timing of puberty may also have an influence on emotional well-being. For example, a boy with short stature may have low self esteem; delayed puberty may result in the boy being treated as being less mature by his peers and adults, and may experience difficulty separating from his parents due to the apparent immaturity. This immaturity may carry on into adulthood, and may affect his chances in the workforce.

However, most times, difficult adolescent behaviour in boys is probably the result of the individual having to adjust to unaccustomed levels of hormones in the context of increasing physical strength and new social roles and responsibilities.

PSYCHOSOCIAL DEVELOPMENTAL PHASES IN BOYS

1. **In early adolescence (10-13 yrs), the main concerns include:**
   a. Body image: concerns about being 'normal'
   b. Independence: less interest in parental activities
   c. Peers: intense relationships with friends
   d. Identity development: increased cognition, day-dreaming, need for privacy

2. **Middle adolescence (14-17 yrs)**
   a. Body image: concern in making oneself attractive
   b. Independence: peak of parental conflicts

c. Peers: Peak of peer involvement with conformity to peer values, codes, dress. Increasing heterosexual relationships
d. Identity development: ability to examine other's feelings, increased intellectually ability; risk taking behaviour

3. Late adolescence (17-19 yrs)
a. Body image: acceptance of pubertal changes
b. Independence: re-acceptance of parental advice and values
c. Peers: More time sharing intimate relationships
d. Identity development: Practical, realistic vocational goals are set, with refinement of moral, religious and sexual values; development of a sense of perspective – ability to compromise and set limits

TAKING A HISTORY FROM AN ADOLESCENT BOY

Engaging the adolescent boy can be very challenging. The healthcare worker must try to create a sense of trust in any interview with the adolescent, and the adolescent should be interviewed before the parents. Healthcare workers should appreciate that confidentiality issues which refers to the control and protection of health information shared between the adolescent and physician is an essential component of health care. However, confidentiality should be conditional in that some information such as suicidality may be of sufficient potential harm to the adolescent that the principle of "first do no harm" supersedes the principle of confidentiality.

As a guideline, when taking a history from an adolescent boy, always appreciate the body language. One can use the mnemonic HEADSS to remind the physician to survey all pertinent aspects of an adolescent's level of functioning:

H: Homelife
E: Education
A: Activities
D: Drugs (alcohol)
S: Sexuality
S: Suicide (depression)

Healthcare workers should be aware of their questioning and reflecting skills which include paraphrasing, summarising and reflecting feelings. At the end of the interview, it is good practice to provide positive feedback, and to indicate areas which need more work, and to arrange for a follow-up to indicate continued interest in building the rapport which has been established.

CONCLUSIONS

Boys need to be understood in the context of their developmental stage. The transition from a boy to a man is a gradual one, and young people may oscillate between the child and adult roles. This can be confusing for one and all. Nonetheless, healthcare workers must be aware that adolescent boys are a distinct group of individuals with specific health needs.

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LEARNING POINTS

- **Developmental issues in the adolescent male include physical changes, sexuality and emotional/ psychosocial changes.**
- **Physicians should be aware of the psychosocial developmental phases in boys, so as to be able to understand and counsel the male adolescent effectively.**
- **The mnemonic HEADSS is a good guide when engaging the adolescent in history taking.**