Global Variations in Pubertal Growth in Adolescents Living with Perinatal HIV

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BACKGROUND

Adolescents living with perinatally acquired HIV experience puberty later than HIV-exposed uninfected children.1 This study describes factors associated with timing of the adolescent growth spurt in adolescents living with HIV, including differences between geographical regions.

INCLUSION CRITERIA


STATISTICAL ANALYSIS

Height-for-age (HAZ) and BMI-for-age z-scores (BMIZ) were calculated using the WHO Growth Standard and WHO 2007 growth reference.3

We used SITAR (Super Imposition by Translation And Rotation) models4 to model height from age 6-18 years separately in males and females.

SITAR models can be used to estimate 3 parameters which represent how an individual differs from the average growth of all patients in terms of mean height, timing and intensity of the pubertal growth spurt.

Multivariate linear regression models were then used to explore characteristics associated with timing of the adolescent growth spurt.

CONCLUSIONS

• In males, higher BMIZ at ART initiation was associated with an earlier growth spurt (p=0.005) (Table 2).
• Males with both lower HAZ and older age at ART start experienced later growth spurts (Sp3).
• Differences across regions were also observed (p<0.001); the growth spurt occurred earlier in males in Asia-Pacific and Latin America, compared to Eastern and Southern Africa (Table 2).

REFERENCES

4. Seage, J. et al. On the y-axis, 0 represents the average time of the growth spurt across all males included in the analysis. Lower values represent earlier growth spurts and higher values represent later growth spurts.
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Table 1: Characteristics of adolescents included in the analysis

Table 2: Multivariable analysis for timing of pubertal growth spurt

Figure 1: Flow diagram

Figure 2: Association between age and HAZ at ART initiation and timing of male growth spurts

Figure 3: Association between age and HAZ at ART initiation and timing of male growth spurts

Adolescents living with perinatally acquired HIV experience puberty later than HIV-exposed uninfected young people.1

This study describes factors associated with timing of the adolescent growth spurt in adolescents living with HIV, including differences between geographical regions.

Adolescents living with perinatally acquired HIV were eligible for inclusion in this analysis if they:

• Initiated combination ART (cART) before age 10 years.
• had 24 height measurements aged 8-18 years including ≥1 measurement aged ≥12 years for females and ≥14 years for males (based on expected age at the peak velocity).
• had height and weight measurements at ART initiation (within 6 months before to 1 month after).

Statistical analysis

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