G4P[8] strains and two G9P[8] strains. Genotype analysis in relation to the period of characterization demonstrated that G1 occurred in both years, whereas genotypes G3 and G9 mainly occurred in the year 2006.

Discussion
In the present study there was a 25% prevalence of rotavirus, whereas in previous studies mainly conducted in the other regions of Brazil, prevalence rates ranged from 11% to 38% [7, 8], with considerable variability of electrophenotypes observed, suggesting the occurrence of seasonal patterns, possibly due to the fact that the different dsRNA segments of rotaviruses have peculiar and variable characteristics of geographic and meteorologic determination. In our study, we observed a predominance of the G1 genotype suggesting the possibility of changes in the prevalence of different genotypes in different geographic regions. Several studies have systematically indicated that a given genotype predominates during a period of up to 2 years, with a new hegemonic antigenic variant arising thereafter, indicating the need for new vaccinal strategies [7–9]. In addition, considering P genotyping, all genotypable strains were P[8], in agreement with studies conducted in different parts of the world [7–10]. The predominant G serotype varies by region and years, G1 tends to be the predominant, occurring ~53% of the times. Other predominant serotypes worldwide are G2 (11%), G3 (14%), G4 (5%) and other genotypes (17%) [7–12]. The findings thus obtained can definitely be used in the analysis of vaccine candidates against this important etiologic agent of childhood diarrhea in our country, thus reducing the impact of this disease.

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References
BMI is a widely used method to define the physical parameter in the assessment of children’s well-being. Physical growth is considered to be an important P of their healthy peers (15.3 children with ATH were significantly below those 214 Journal of Tropical Pediatrics Vol. 56 (175 male controls between the ages of 5.7 and 10.8 years 8.8 between the ages of 6.5 and 10 years (mean age 8.2 years). This study included 29 male prepubertal children IGFBP-3 levels as compared with healthy controls. We thought that malnutrition in children with ATH is the most important contributing factor for the growth-delay resulting in decreased IGF-1 levels. Since those children have been observed as having decreased appetite, we anticipated finding decreased ghrelin levels compared with the healthy controls. Our results verified our expectations that in children with ATH, ghrelin levels were depressed, which was evidence of poor appetite in those children. We detected significantly lower daily caloric intake in children with ATH in correlation with depressed ghrelin levels. There are many studies showing that tonsillectomy in children with obstructive tonsil hypertrophy can lead to an improvement of the nutritional status [16–19]. Our study is the first instance proposing that depressed ghrelin levels cause delayed growth and underweight status in children with ATH.

Adenotonsillar hypertrophy (ATH) is associated with growth interruption during childhood. Interruption of growth hormone (GH) insulin-like growth factor-1 (IGF-1) axis resulting in abnormal GH secretion, decreased appetite due to hypoxemia leading to insufficient food intake and increased energy consumption secondary to difficult breathing effort are the postulated causes [1–6]. Ghrelin is a potent GH secretagogue, which also plays an important role in appetite and weight regulation [7–9]. Serum IGF-1 and IGF-binding protein 3 (IGFBP-3) are the main mediators of the growth-promoting actions of GH and seem to correlate well with physiologic changes in GH secretion [10, 11]. We anticipated that obstructive adenoid and tonsillar hyperplasia may present with suppressed plasma ghrelin and serum IGF-1 resulting in retardation of growth.

Study

This study included 29 male prepubertal children between the ages of 6.5 and 10 years (mean age 8.8±2.5 years) with obstructive ATH and 20 normal male controls between the ages of 5.7 and 10.8 years (mean age 8.2±2.9 years). In both the groups, plasma ghrelin and serum IGF-1 levels were measured at 8.30, in the morning. Male children with ATH had significantly depressed serum IGF-1 levels (203±150 ng ml⁻¹) and plasma ghrelin levels (175±66 pg ml⁻¹) compared with healthy controls (354±242 ng ml⁻¹ and 243±93 pg ml⁻¹, respectively, P < 0.05). Body mass indexes (BMIs) of children with ATH were significantly below those of their healthy peers (15.3±2.5 kg m⁻² and 18.9±3.2 kg m⁻², respectively, P < 0.05).

Discussion

Physical growth is considered to be an important parameter in the assessment of children’s well-being. BMI is a widely used method to define the physical growth in children also reflecting the relationship between weight and height [12]. In our study, children with ATH had lower BMI, weight and height SD scores compared with their healthy peers. Impaired nocturnal GH secretion in accordance with the abnormal sleep patterns has been proposed as the cause of the growth delay in children with ATH [13]. Besides deficient GH secretion, the interruption of growth in children with ATH has been thought to be related to the diminished IGF-1 levels [14, 15]. In relation to delayed growth in children with ATH, we reported that they had diminished serum IGF-1 levels, but similar IGFBP-3 levels as compared with healthy controls. We thought that malnutrition in children with ATH is the most important contributing factor for the growth-delay resulting in decreased IGF-1 levels. Since those children have been observed as having decreased appetite, we anticipated finding decreased ghrelin levels compared with the healthy controls. Our results verified our expectations that in children with ATH, ghrelin levels were depressed, which was evidence of poor appetite in those children. We detected significantly lower daily caloric intake in children with ATH in correlation with depressed ghrelin levels. There are many studies showing that tonsillectomy in children with obstructive tonsil hypertrophy can lead to an improvement of the nutritional status [16–19]. Our study is the first instance proposing that depressed ghrelin levels cause delayed growth and underweight status in children with ATH.

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References

Toxocariasis: Incidence, Prevalence and the Time Serum remains Positive in School Children from Campinas, SP, Brazil

Introduction

Human toxocariasis is an infection caused by *Toxocara canis*, which is widely distributed throughout the world [1]. The objectives of this study are: (i) to describe the incidence of infection by *T. canis* in a cohort of 6- to 14-year-old school children living in Jardim Santa Mônica, Campinas, São Paulo State, Brazil; (ii) to identify the prevalence of children with positive serology for *T. canis* in this community; and (iii) to identify the time these children remain serologically positive.

Subjects and Methods

This study was composed by one transversal and by a cohort. All students aged between 6 and 14 years who in the mornings attended teaching institutions in Jardim Santa Mônica, Campinas, São Paulo State, Brazil were studied. Prevalence was described as the number of seropositive children at first evaluation divided by the total number of children. Incidence was described as the number of children that were negative and became positive at the end of the year, divided by the number of the children-year followed. Estimation of the time a child remained seropositive was calculated using the following formula: prevalence = incidence × time of disease (in the time of the case when the disease remained seropositive).

This study was approved by Unicamp School of Medical Sciences Research Ethics Committee.

Results

Of the 100 children initially tested, 28 were seropositive for *T. canis* infection. Therefore, seroprevalence in this community was 28% (IC 19.7–38). The 72 remaining children who had presented a seronegative result made up the cohort of children followed up for 1 year. Three children became infected between the first and the second serology, and two between the second and the third serology. Five children abandoned the cohort between the second and the third serology. We had in total five infected children in 801 child-months of follow-up, signifying an incidence rate of 7.63 *T. canis* infected children per 100 child-years follow-up. All children infected were asymptomatic at the end of this study.

Time that serology remained positive = prevalence/incidence = 28/7.67 ~4 years

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