Prevalence of undernutrition among rural adolescents of West Bengal, India

During the last two decades anthropometric measurements have become the measures of choice for determination of nutritional status among children and adolescents. It has now been well established that the body mass index (BMI) is the most appropriate, inexpensive, non-invasive tool to use to determine the nutritional status [1]. Several recent studies have investigated nutritional status of adolescents from different parts of India [2–4]. However, there is very little information on the nutritional status of adolescent school children from rural West Bengal [5, 6]. In view of this, present study was undertaken to investigate the level of undernutrition (thinness) among 10–15 year old rural school children in Paschim Medinipur and Puruliya district of West Bengal.

This cross-sectional study was conducted in two districts over a period of 2 years. The schools were selected following multistage cluster sampling method. Thereafter, in the identified schools, children were informed about the objectives before initiation of the study. Information on date of birth was recorded from the school register. Height and weight measurements were made following the standard techniques [7] and BMI computed as weight in kg divided by height in meter square. Nutritional status was evaluated using the World Health Organization (WHO) [1] recommended age and sex specific cut-off points of BMI based on the National Health and Nutrition Examination Survey (NHANES) percentile values [8]. Undernutrition was defined as BMI <5th percentile as recommended by WHO [1].

A total of 2016 students, out of whom 1036 (51.39%) boys and 980 (48.61%) girls aged 10–15 years were randomly selected and measured. Table 1 presents the age–sex distribution of sample, mean (SD) of BMI and prevalence of undernutrition. It was observed that there was a consistent increasing trend in mean BMI with age among both sexes. At all ages, girls had higher mean BMI. There was a consistent decreasing trend in the rate of undernutrition from 10 (53.54%) to 15 years (41.54%) among boys and from 10 (45.76%) to 15 years (20.17%) among girls. The prevalence of undernutrition was significantly higher in boys (51.74%) as compared with girls (36.94%). The overall (sex and age combined) prevalence of undernutrition was 44.54%. This study adds support to the large body of evidence which indicates that high prevalence of adolescent undernutrition is a major public-health problem in developing countries, especially in rural areas.

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References

Table 1
Nutritional status of adolescents based on BMI

<table>
<thead>
<tr>
<th>Age (year)</th>
<th>Sample size</th>
<th>BMI (kg m⁻²)</th>
<th>Undernutrition (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
</tr>
<tr>
<td>10</td>
<td>127</td>
<td>118</td>
<td>14.51 (1.64)</td>
</tr>
<tr>
<td>11</td>
<td>189</td>
<td>164</td>
<td>14.90 (1.42)</td>
</tr>
<tr>
<td>12</td>
<td>235</td>
<td>225</td>
<td>15.31 (1.99)</td>
</tr>
<tr>
<td>13</td>
<td>195</td>
<td>178</td>
<td>15.75 (1.65)</td>
</tr>
<tr>
<td>14</td>
<td>160</td>
<td>176</td>
<td>16.61 (2.24)</td>
</tr>
<tr>
<td>15</td>
<td>130</td>
<td>119</td>
<td>17.25 (2.20)</td>
</tr>
<tr>
<td>Total</td>
<td>1036</td>
<td>980</td>
<td>15.67 (2.06)</td>
</tr>
</tbody>
</table>

SDs are presented in parentheses.
*Sex difference (p < 0.05).
The Role of Flexible Bronchoscopy in Pediatric Pulmonary Tuberculosis

Tuberculosis (TB) disease in children is complicated by the unique challenges that it poses to the clinician. Despite the availability of effective preventive measures and chemotherapy, the prevalence of TB is increasing in the developing world, and in much of the industrialized world as well. The incidence of TB in developed countries has declined over the last several decades. However, in recent years, there has been an increase in reported cases, especially in urban areas. In developing countries, the risk for TB infection and disease is relatively uniform in the population; annual rates of infection often exceed 2%. In pediatric patients, pulmonary tuberculosis (PTB) is a major TB infection, but the diagnosis of PTB presents a challenge. The symptoms of PTB infection are often absent or less specific in the affected pediatric population. Because children aged <8 years old lack sputum production, it is difficult to diagnose by sputum specimen. Children with PTB typically have closed caseous lesions with a relatively small number of mycobacteria. The large cavity population of tubercle bacilli seen in adults is usually absent in children. This is compounded by the difficulty in collecting sputum in children as they swallow the expectorate coming from the lungs. Furthermore, at present, diagnostic tests are costly, slow and lacking in sensitivity. Flexible bronchoscopy (FB) is a newly available tool in the investigation of pediatric pulmonary disease. FB has been used mainly to evaluate unresolved chronic respirator symptoms, and in certain circumstances, to obtain cultures from the immune system of compromised hosts. Therefore, the aim of this retrospective survey is to evaluate the role of FB in the diagnosis of pediatric PTB.

In order to evaluate the value of FB for the diagnosis of children with suspected PTB, clinical records were retrospectively reviewed in 206 patients, who were diagnosed with PTB from January 2002 to December 2006 at the Beijing Children’s Hospital. All 206 patients were examined by chest X-ray. Purified protein derivative tuberculin skin test (PPD) results were interpreted according to the recommendations of the American Thoracic Society. FB was performed on every patient according to clinical records in our survey. Bronchoalveolar lavage (BAL) was obtained to isolate Mycobacterium tuberculosis by FB. The mean age was 4.5 ± 2.7 years. The most frequent symptoms were cough (90%) and fever (85%) in all patients. The PPD results of 150/181 patients were 10 mm or more. Characteristic chest X-ray findings of PTB were 98/206 (47.6%). Thirty-three patients with endobronchial tuberculosis (EBTB) (94.3%) were diagnosed by FB. Bronchoscopic findings of 206 cases were divided into four types by our previous study. The number of inomucous membrane, bronchial lumen, caseating, and blending type was 36, 19, 6 and 145, respectively. FB is a useful tool to diagnose pediatric PTB. FB should be performed especially when chest X-rays are abnormal or when clinical signs suggest PTB.

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Epidemiological and Molecular Analysis of Astrovirus Gastroenteritis in Dhaka City, Bangladesh

Human astrovirus (HAstV) may be the second most common cause of viral gastroenteritis in young children, with rotavirus being the first [1]. HAstVs are members of the Astroviridae family. They are non-enveloped viruses possessing a single stranded RNA of positive polarity [2].