EPIDEMIOLOGICAL FEATURES OF CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) AT NATIONAL CHILDREN’S HOSPITAL IN 2016

Thanh Ngoc Minh¹, Le Thanh Hai¹, Do Manh Hung¹

ABSTRACT

**Aim:** To describe some epidemiological features of children with ADHD at the National Children’s Hospital in 2016

**Methods:** A cross-sectional combined with qualitative method was conducted on 105 patients having examination at the hospital, using VADPRS.

**Result:** There are 91.43% of children with ADHD, in which ADHD combined hyperactivity and attention deficit accounts for 58.1%, hyperactive ADHD accounts for 13.3%, inattentive ADHD accounts for 20%. Most of the cases are male with 87.5%; Age: 6-9 years rank the highest with 88.29%; living area: most patients live in the countryside 55.21%; most of the parents have high school diploma with 78.13%. There is no relation between kinds of ADHD and gender, age, living area, parents occupation and qualification (p>0.05).

**Conclusion:** Patients with ADHD have common features of combined ADHD, male, age from 6 - 9, living in the countryside and parents having high school diploma.

**Keywords:** Epidemiological features, attention-deficit hyperactivity disorder (ADHD), VADPRS (Vanderbilt ADHD Diagnostic Parent Rating Scales).

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I. INTRODUCTION

Many studies in the world show that ADHD is a common disorder in children, according to DSM, there are 5% of children with ADHD, in the United States the rate of ADHD in children was 11% in 2011 [1], in India it was 10-20%, in United Arab Emirates it was 29.7% [2]. A study in the United States shows that children with ADHD are at higher risk of trauma than other children, younger people with more severe ADHD are at higher risk of traffic accidents, drinking alcohol when participating traffic and traffic violations [3], [4]. ADHD is a high-cost disease, and a study in 2005 in the United States found that ADHD had a treatment cost of US $ 36-52 billion, it was estimated that it was US $ 12,005 - US $ 17,458 per person [5].

A study at the National Children’s Hospital in 2013 showed that the rate of attenuation decreased significantly, accounting for 74.2% of the number of children going to suspicious examination [6]. Determining the features of Attention Deficit Hyperactivity is necessary, especially helping to find solutions for effective community prevention and intervention activities. Therefore we conduct with the study: "Epidemiological features of children with Attention Deficit Hyperactivity Disorder (ADHD) at National Children’s Hospital in 2016”

II. SUBJECT AND METHOD OF STUDY

2.1. Subject:
- Children who come to get medical examination and treatment of ADHD ensure the following criteria:
  + Visiting the doctor for signs of ADHD at National Children’s Hospital.
  + Children from 6-14 years old.
  - Parents participating in the study
  - Children participating in the study are those who have been explained and provided with information about the study, with the willingness of parents to participate in the study.

2.2. Time and place of the study:
- Study period: From September 2015 to June 2016.
- Location: Outpatient Room - Psychiatry Department - National Children’s Hospital.

2.3. Study design:
- The study is designed according to the cross-sectional combined with qualitative method.
- Sample size and sampling method: Convenient and continuous sampling.
  - Select convenient and continuous samples at the Mental Health Room, National Children’s Hospital for 12 months.
  - Select all patients who meet the selection and exclusion criteria within the study period.
- The study results include 105 children participating in the study.

2.4. Diagnostic criteria:
The study uses ADHD diagnostic criteria according to Vanderbilt scale for evaluation model for parents.

The scale includes: 47 questions to assess hyperactivity, attention reduction, and oppositional defiant disorder
  and anxiety, depression and 8 questions about activities (including social relationships and study result). Each item is rated a score of 0 → 3 corresponding to the level of behavior from never to very often.

Among 47 questions, there are 9 questions to assess impulsiveness hyperactivity and 9 questions to assess attention reduction. In particular, the assessment is as follows:
  + \textit{Outstanding attention reduction}: From 1 → 9, more than 6 expressions scored at 2 or 3 and activities with more than 1 item scored at 4 or 5
  + \textit{Outstanding hyperactivity}: From item 10 → 18, more than 6 expressions scored 2 or 3 and activities with more than 1 item marked at 4 or 5
  + \textit{Combination type}: Need more expression of both hyperactivity and attention reduction

III. STUDY RESULTS
Thus, among 105 children with ADHD, the diagnosis shows that 96 children get ADHD accounting for 91.43%, of which ADHD with outstanding attention reduction appears at 21 children accounting for 20%, 14 children get ADHD with outstanding hyperactivity accounting for 13.33% and 61 children get ADHD with combined type accounting for 58.1%.

The results show that major of children are male, accounting for 87.5%, the age is mainly from 6-9 years old, accounting for 82.29%, the average age in our study is 8.10 ± 1.78. Children in rural area account for 55.21%. There is no statistically significant difference between ADHD classification by gender, age and living area (p> 0.05).

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### Table 1. Diagnosis results of ADHD

<table>
<thead>
<tr>
<th>Features</th>
<th>Type</th>
<th>Attention reduction</th>
<th>Hyperactivity</th>
<th>Combined</th>
<th>ADHD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Quantity</td>
<td>Ratio %</td>
<td>Quantity</td>
<td>Ratio %</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>17</td>
<td>80.95</td>
<td>11</td>
<td>78.57</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>4</td>
<td>19.05</td>
<td>3</td>
<td>21.43</td>
</tr>
<tr>
<td>Age</td>
<td>6-9 years old</td>
<td>15</td>
<td>71.43</td>
<td>13</td>
<td>92.86</td>
</tr>
<tr>
<td></td>
<td>10-14 years old</td>
<td>6</td>
<td>28.57</td>
<td>1</td>
<td>7.14</td>
</tr>
<tr>
<td>Living area</td>
<td>Rural area</td>
<td>14</td>
<td>66.67</td>
<td>6</td>
<td>42.86</td>
</tr>
<tr>
<td></td>
<td>Urban area</td>
<td>7</td>
<td>33.33</td>
<td>8</td>
<td>57.14</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>21</td>
<td>100</td>
<td>14</td>
<td>100</td>
</tr>
</tbody>
</table>

### Table 2. Features of parents of children with ADHD

<table>
<thead>
<tr>
<th>Features</th>
<th>ADHD</th>
<th>Attention reduction</th>
<th>Hyperactivity</th>
<th>Combined</th>
<th>ADHD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity</td>
<td>Ratio %</td>
<td>Quantity</td>
<td>Ratio %</td>
<td>Quantity</td>
</tr>
<tr>
<td>Other's occupation</td>
<td>Others</td>
<td>15</td>
<td>71.43</td>
<td>12</td>
<td>85.71</td>
</tr>
<tr>
<td></td>
<td>Farmer</td>
<td>6</td>
<td>28.57</td>
<td>2</td>
<td>14.29</td>
</tr>
<tr>
<td>Mother's level of education</td>
<td>≥ High school</td>
<td>15</td>
<td>71.43</td>
<td>11</td>
<td>78.57</td>
</tr>
<tr>
<td></td>
<td>&lt; High</td>
<td>6</td>
<td>28.57</td>
<td>3</td>
<td>21.43</td>
</tr>
</tbody>
</table>
Among the patients of children with ADHD, mothers who are farmer account for more than 1/4 of the mothers, level of education of mothers under high school accounts for more than 1/5 of the mothers, fathers who are farmer account for more than 30%, level of education of fathers under high school accounts for 22%. There is no statistically significant difference between the occupation and level education of fathers and mothers with the proportion of ADHD in children (p > 0.05).

IV. DISCUSSION

* Percentage of ADHD

Results of our study show that among 105 children visiting National Children’s Hospital, 91.43% children gets ADHD, of which ADHD with outstanding attention reduction accounts for 20%, children with ADHD with outstanding hyperactivity accounts for 13.33% and children with ADHD with combined type accounts for 58.1%.

The study results are higher than the results at National Children’s Hospital in 2013, in which the percentage of attention reduction was 74.2%. Combined form accounted for the highest proportion, attention reduction accounted for 41.29%, hyperactivity accounted for 20%, impulsiveness hyperactivity was 12.9% [6].

Compared with the study of Xiao HZ et al. (2013), in subjects with suspected ADHD children using VADRS and DSM scales, the study results showed that 196 among 319 children had ADHD, in which 84 children got ADHD with outstanding attention reduction, 35 children got ADHD with outstanding hyperactivity and 77 children with ADHD with combined type [7]. Thus, in this study, ADHD with outstanding attention reduction got the highest percentage and ADHD with outstanding hyperactivity had the lowest percentage.

Compared with the study in Saudi Arabia by author Jamal H et al. (2008), it was showed that ADHD with outstanding attention reduction was 16.3%, ADHD with outstanding hyperactivity was 12.4%, ADHD with combined type was 16.4 % [8].

* Demographic features of the subjects:

- Gender: Male children with ADHD accounts for 87.5%, female children with ADHD accounts for 12.5%, of which the rate of male with ADHD with outstanding attention reduction accounts for 80.95%, the rate of male with ADHD with outstanding hyperactivity is 78.57%, the rate of male with ADHD in combined form is 91.80%.

- Age: The age of ADHD is mostly 6-9 years old with 82.29%, while the age of 10-14 years accounts for 17.71%. The average age in our study is 8.10 ± 1.78. ADHD with outstanding attention reduction aged 6-9 accounts for 71.43%, ADHD with outstanding hyperactivity aged 6-9 accounts for...
92.86%, ADHD with combined type aged 6-9 accounts for 83.61 %.

Similar to the study results in 2013 at National Children’s Hospital, the age of 4-11 was 93%, the age of 12-18 accounts for 7%, in which outstanding attention reduction aged 4-11 accounted for 93.5%, outstanding hyperactivity aged 4-11 accounted for 100%, combined group aged 4-11 accounted for 90.6% [6].

The results of our study are similar to Becker SP et al (2012), in group aged 7-11, the average age in children with ADHD was 8.26 ± 1.30 [9].

Our study has a difference when compared with the survey results ofCDC (2008) in the community from 2004-2006, showing that the proportion of group age 6-11 (7.1%) is higher than the group age 12-17 [10].

Living area: Rural living area with 55.21% compared to urban area is 44.79%, in which urban area in ADHD with outstanding attention reduction accounts for 33.33%, ADHD with outstanding hyperactivity is 57.14%, ADHD of combined type in urban area accounts for 45.90%.

The results are different from the study results at National Children’s Hospital in 2013, showing that the majority of children with ADHD were in Hanoi city with 81.7%, in which the combined form accounted for the highest proportion with 82.8%, the outstanding attention reduction accounted by 80.6% and the outstanding hyperactivity was 80% [6].

*Features of parents of children with ADHD*

Occurrence of parents: The results of our study show that farmer mothers account for 26.04%, farmer fathers account for 30.21%. Of which, percentage of farmer mothers of children with ADHD with outstanding attention reduction is 28.57%, percentage of farmer fathers is 33.33%, percentage of farmer mothers of children with ADHD with outstanding hyperactivity is 14.29%, percentage of farmer fathers is 14.29%, percentage of farmer mothers of children with ADHD with combined type is 27.87%; percentage of farmer fathers is 32.79%.

Parents’ education: In our study in children with ADHD, mothers have an education from high school or higher accounts for 78.13%; fathers have accounts for 78.13%. In particular, the group of children with ADHD with outstanding attention reduction, mothers have an education from high school or higher accounts for 71.43%; fathers have an education from high school or higher accounts for 71.43%. The group of children with ADHD with outstanding hyperactivity, mothers have an education from high school or higher accounts for 78.57%, fathers have an education from high school or higher accounts for 78.57%. In group of children with ADHD in combination, mothers have an education from high school or higher accounts for 80.33%; fathers have an education from high school or higher accounts for 80.33%.

The CDC study (2008) found that mothers’ education had differences in the rate of ADHD in children, but mothers under high school had the lowest rate of children with ADHD with 6.4%, good mothers. High school students with children with ADHD accounted for 9.2%, mothers graduating from colleges with children with ADHD accounted for 9.5%, mothers graduated bachelors and above bachelor's children with ADHD accounted for 6.5% [10].

Research by Becker SP et al (2012) shows that in the group of children with ADHD, most of them are middle-class with the rate of 42% (30,000-80,000 USD / year), low-income components account for 31% (< USD 30,000 / year), high-income components account for 28% (> USD 80,000 / year) [9].

Occupational reality affects the living life between children and parents. Occupation, busy work can affect family time together. According to the study of Jamal H. Al Hamed et al. (2008) in Saudi Arabia the role of parents is very important for the incidence of ADHD, in which children living with parents with ADHD are lower than children living with only one parent [8].

V. CONCLUSIONS AND RECOMMENDATIONS

The quantitative research results on 105 children examined at the National Hospital of Pediatrics showed that the prevalence of ADHD in children was 91.43%, in which the combined form accounted for the majority. Children with ADHD are characterized by being largely in combination form, boys and ages 6-9, in rural areas, with parents with high school education or more. The study also found that ADHD forms were not statistically significant with age, gender, living, occupational and educational characteristics of parents.

From the research results, the majority of children with ADHD in combination have severe symptoms. Therefore, the intervention is necessary especially through the mind in the group of boys and children. 

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aged 6-9 years old and having parents who study from upper high school.

REFERENCES: