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OCCURRENCE OF HYPERTENSION BASED ON CHARACTERISTICS OF ADOLESCENTS AT MODERN BOARDING OF IMMIM PUTRA MAKASSAR

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ABSTRACT

Introduction: Hypertension is a disease that appears without symptoms, and many people are detected in adolescence when screening blood pressure. Based on the results of Riskesdas (2013), the prevalence of adolescent hypertension was 8.7%. This study aimed to identify the incidence of hypertension based on the characteristics of adolescents includes age, nutritional status, parental history of hypertension, and smoking habits.

Method: This study was a descriptive design through cross sectional approach using consecutive sampling with 125 respondents at Modern Boarding of IMMIM Putra, Makassar. Data was collected using questionnaire to assess the characteristics and the incidence of hypertension in adolescents. Data analysis used univariate and cross tabulation.

Results: The results showed that 100 adolescents did not have hypertension and 11 from 25 adolescents had hypertension (44%) in 17 years old. Adolescent with obesity that had hypertension was 5 (24%), 13 adolescents (52%) were with hypertension history of parents, and 11 adolescents (44%) had smoking habit.

Conclusion: The age of most adolescents who had hypertension was in 17 years old while obesity factors, hypertension history of parents and smoking habit were risk factors for hypertension in adolescents. Early detection and treatment of risk factors to adolescent are first steps to prevent complications of hypertension in adulthood through health education of healthy lifestyles.

Keywords: Hypertension, age, nutritional status, hypertension history of parents, adolescent
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BACKGROUND

Hypertension is known as the silent killer disease, it can lead to cardiovascular disease or stroke and ultimately cause death (Kurniadi & Nurrahmani, 2014). Hypertension is considered as a global health problem because of complications and death caused by hypertension is quite serious. Complications of hypertension cause 9.4 million deaths in worldwide each year and it is responsible for 45% of deaths from heart disease (WHO, 2013).

Hypertension is also known as a heterogeneous group disease because it can affect anyone regardless of age, social, and economic. It is proved that hypertension can be suffered by any person of the various sub-risk groups in society (Widyanto & Triwibowo, 2013). Hypertension is also found in children and adolescents. According to JNC VII in 2003, national prevalence of hypertension in adolescents aged 15-17 years is 5.3% (Riskesdas, 2013). According to WHO (2005), incidence of hypertension in children and adolescents about 1-3%.

Adolescents with hypertension is an important health problem and needs to be addressed. High blood pressure even in the prehypertension range can evolve when adult and cause serious complications and even death (Wong, et al., 2009). Research conducted by Tirosh et al (2010) showed that adolescents with blood pressure even in the prehypertension range can develop to hypertensive when adult. This study aimed to identify the incidence of hypertension based on the characteristics of adolescents includes age, nutritional status, parental history of hypertension, and smoking habits.

METHODS

This study was a descriptive design through cross sectional approach using consecutive sampling with 125 respondents at Modern Boarding of IMMIM Putra, Makassar for February until March 2015. Data was collected using questionnaire to assess the characteristics and the incidence of hypertension in adolescents. Data analysis used univariate and cross tabulation.

RESULTS

Results of univariate analysis that describes Distribution of Hypertension Incidence by Age at Modern Boarding of IMMIM Putra Makassar 2015 can be seen in Table 1.
Table 1. Distribution of Hypertension Incidence by Age at Modern Boarding of IMMIM Putra Makassar 2015

<table>
<thead>
<tr>
<th>Age Of Respondent (year)</th>
<th>No Hypertension</th>
<th>Hypertension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>14</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>16</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>17</td>
<td>37</td>
<td>37</td>
</tr>
<tr>
<td>total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Results of univariate analysis that describes Distribution of Hypertension Incidence by Nutritional Status (BMI/Age) at Modern Boarding of IMMIM Putra Makassar 2015 can be seen in Table 2.

Table 2 Distribution of Hypertension Incidence by Nutritional Status (BMI/Age) at Modern Boarding of IMMIM Putra Makassar 2015

<table>
<thead>
<tr>
<th>Nutritional Status</th>
<th>No Hypertension</th>
<th>Hypertension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Normal</td>
<td>86</td>
<td>86</td>
</tr>
<tr>
<td>Underweight</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Very Thin</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Overweight</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Obesity</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Results of univariate analysis that describes Distribution of Hypertension Incidence by Genetic at Modern Boarding of IMMIM Putra Makassar 2015 can be seen in Table 3.

Table 3 Distribution of Hypertension Incidence by Genetic at Modern Boarding of IMMIM Putra Makassar 2015

<table>
<thead>
<tr>
<th>Genetic History</th>
<th>No Hypertension</th>
<th>Hypertension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Yes</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>No</td>
<td>74</td>
<td>74</td>
</tr>
<tr>
<td>total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Based on the results of this study, most respondents aged 17 years (38.4%), had a normal nutritional status (38.4%), parents with no history of hypertension (68.8%), and non-smokers (56.8 %). Most respondents (80%) were not hypertensive (≤ 95th percentile), and (20%) had hypertension (≥ 95th percentile). There were respondents...
aged 17 years with no hypertension (37%) and hypertension (44%), the respondents with no hypertension had normal nutritional status (86%), and with hypertension also have the normal nutritional status (64%), respondents who did not have hypertension parents had a history of hypertension (74%), while the most hypertensive parents had a history of hypertension (52%), and most respondents who was not hypertensive did not smoke (57%), as well as the many who had hypertension with smoking habits (56%).

**DISCUSSION**

*Age and Hypertension*

In The Fourth Report on the Diagnosis, Evaluation, and Treatment of High Blood Pressure in Children and Adolescents that like in adults, children with blood pressure of 120/80 mmHg is included as disorder of blood pressure called prehypertension. This situation can continue to be hypertensive if not addressed quickly and properly. Research conducted by Tyros et al (2010) entitled *progression of normotensive adolescents to hypertensive adults: a study of 26980 teenagers* showed that teenagers aged 17 are most at risk of hypertension in the future and associated with BMI and male gender.

*Nutritional Status and Hypertension*

According Daryanto and Triwibowo (2013) that one of risk factors associated with hypertension is obesity. The state of obesity is associated with increased intravascular volume and cardiac output. Pumping power of heart and circulation of blood volume in obese hypertensive patients was higher than hypertensive patients with normal weight.

*Genetic and Hypertension*

History of parents with hypertension may affect the incidence of hypertension in adolescents. A theory suggests that around 70-80% of people with primary hypertension have a family history with hypertension. The risk of hypertension doubled in people who had both parents with hypertension compared with parents who do not have a history of hypertension (Widyanto & Triwibowo, 2013).

*Smoking Habit and Hypertension*

Cigarettes contain 4000 chemical types, main toxins in cigarettes are tar, nicotine, and carbon monoxide (CO) and other materials that damage blood vessels and cause blood clots. Smoking is proven to be the biggest risk factor for sudden death (Politeknik Depkes Jakarta I, 2010). Smoking can increase blood pressure by stimulating the sympathetic nerves to release norepinephrine through arenergic nerves and
increases the heart rate and blood pressure. Smoking also stimulate chemoreceptors in the carotid artery and aortabodies in increasing heart rate and blood pressure (Widyanto and Triwibowo, 2013)

CONCLUSION
The age of most adolescents who had hypertension was in 17 years old while obesity factors, hypertension history of parents and smoking habit were risk factors for hypertension in adolescents. Early detection and treatment of risk factors to adolescent are first steps to prevent complications of hypertension in adulthood through health education of healthy lifestyles.

REFERENCES


