主論文の要約

Factors associated with diabetes mellitus and hypertension among adults in the northern rural area, Afghanistan

アフガニスタン北部農村地域の成人における
糖尿病および高血圧に関連する因子

名古屋大学大学院医学系研究科　総合医学専攻
社会生命科学講座　医療行政学分野

（指導：山本　英子　教授）

Said Hafizullah son of Said Faizullah

【Introduction】

Non-communicable diseases (NCDs), including cardiovascular diseases, cancers, diabetes mellitus (DM), and chronic respiratory diseases, are the leading cause of death globally. Afghanistan has an increasing trend of mortality due to non-communicable diseases but most studies were conducted in urban areas. This study aimed to assess the prevalence and factors associated with diabetes mellitus and hypertension in a rural area in Afghanistan.

【Methods】

This is a cross-sectional study which was conducted in the Andkhoy District of Faryab Province, in the northern part of Afghanistan, from September 2019 to October 2019. In 2019, the total population of the district was 44,715, including 22,164 men and 22,551 women.18 A multistage sampling method was used to select study samples from permanent residents in the district who were 18–79 years old. We used the list of clusters for the Expanded Program for Immunization that included the village names, the number of households, and the total population in each cluster. In the first stage of sampling, four clusters were selected from all seven clusters using a lottery method. In the second stage, four villages were randomly selected from all villages in each cluster. In the third stage, every third household was selected starting from the household on the right-side area of the village. Finally, one person who was 18–79 years old and lived in the district for six months or more was selected from each selected household. When a household had two or more eligible persons, a lottery method was used to select the designated participant.

【Results】

The data of 373 participants who lived in the Andkhoy District of Afghanistan were analyzed in this study, including 228 women (61.1%) and 145 men (38.9%). The mean age of the 373 participants was 43.2 years old (standard deviation, 15.2) and the major age group was 18-39 years old (n=161, 43.2%) followed by 40-59 years old (n=147, 39.4%). [Table 1]

A family history of DM and HT was found among 14.5% (n=54) and 34.9% (n=130) of the participants, respectively (Table 2). Most participants had never smoked (n=327, 87.7%) or used snuff (n=317, 85.0%). In terms of food intake, 328 participants (87.9%) had a low intake of fruits and vegetables and 96 participants (25.7%) had palaw three times per week or more, respectively. According to BMI, 24 participants (6.4%) and 105 participants (28.2%) were categorized into obesity and overweight, respectively, while 16 participants (4.3%) were categorized into underweight. There were 153 participants (41.0%) whose WC was high. The prevalence of DM was 9.7% (n=36) in total, 7.9% (n=18) in women, and 12.4% (n=18) in men. Of the 36 participants categorized into DM, the prevalence of HT was 29.5% (n=110) in total, 32.5% (n=74) in women, and 24.8% (n=36) in men. [Table 2]

Multivariate analysis showed that male compared to female (AOR=9.81, 95% CI: 2.48-

38.90), family history of DM (AOR=3.84, 95% CI: 1.30-11.38), no history of used snuff (AOR=0.18, 95% CI: 0.04-0.75), low physical activity (AOR=4.53, 95% CI: 1.13-18.26), and high WC (AOR=7.93, 95% CI: 2.40-26.20) were associated with DM.
[Table 3]

In multivariable logistic regression analysis, the age group of 60–79 years old (AOR=19.83, 95% CI: 7.19–54.71) compared to the age group of 18–39 years old, family history of HT (AOR=2.17, 95% CI: 1.15–4.10), and consuming palaw 3 times per week or more (AOR=1.86, 95% CI: 1.03–3.38) compared to palaw 3 times < per week were associated with HT. [Table 4]

【Discussion】

In this study, the prevalence of DM among adults of 18-79 years old in the Andkhoy District was 9.7%, which was lower than that in previous studies in urban areas of Afghanistan. It may be because the percentage of general obesity (high BMI), and central obesity (high WC) was lower in this study compared to the previous studies. These results may suggest that people in rural areas have a healthier lifestyle compared to those in urban areas. Urbanization changes people's lifestyle and environment and these changes contribute to development of NCDs, especially DM, among urban residents.

This study showed that the prevalence of HT among adults of 18-79 years old in the Andkhoy District was 29.5%, which was similar to that of some previous studies in urban areas in Afghanistan; 24.4% among adults of 25-65 years old in Jalalabad City, 25.7% among adults of 18 years or older in Kabul, and 32.3% among adults of 25-70 years old in Kabul.

In this study, the factors associated with DM were being male, having a family history of DM, having never used snuff, low physical activity, and high WC. A family history of DM, physical inactivity, and central obesity were reported as risk factors for DM in previous studies. The association between DM and being male was not found in previous studies conducted in Afghanistan. It may be because the proportion of the age group of 60-79 years old was higher among males than females in this study.

In this study, 40 years old or older, family history of HT, and intake of palaw 3 times per week or more were associated with HT. Older age, especially 65 years or older, and family history of HT were reported to be risk factors for HT in previous studies conducted in Afghanistan and other countries. A high intake of salt, saturated fats, rice, and red meat can increase the risk of developing HT. Palaw is Afghanistan's national food which is made from meat (often lamb), onions fried with oil, rice, salt, sugar, and others.

There are some limitations to this study. First, this study was conducted in a selected rural area, therefore, the findings in this study may not be generalizable to other rural areas in Afghanistan. Second, NCD-related biomarkers, such as dyslipidemia, could not be included in this study because cholesterol and triglyceride levels could not be measured due to a limited research budget.

【**Conclusions**】

In conclusion, the prevalence of DM and HT among adults in the Andkhoy District, Afghanistan was 9.7% and 29.5%, respectively. Factors associated with DM were male gender, family history of DM, low physical activity, and high waist circumference. Factors associated with HT were age over 40 years old, family history of HT, and palaw intake of 3 times per week or more. These findings are timely and important to support the formulation and implementation of NCD-related policies and plans of action for rural population in Afghanistan. Lifestyle interventions for increasing physical activity should be introduced and health education about snuff usage and salt intake should be promoted in communities in Afghanistan.