

Morbidity Dataset of High Risk Patients with Hypertension over 60a in Xiji County of China

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Abstract: By selecting the patients' data from hospitals of Xiji county and surrounding hospitals in Ningxia Hui autonomous region of China, the incidence rate of high-risk hypertensive patients in towns of Xiji county from 2015 to 2016 were analyzed. The incidence rate of hypertension in various towns of Xiji county was charted by ArcGIS. Different incidence grades were used to indicate the incidence rate of high risk patients with hypertension over 60a among towns, and to get dataset of high-risk elderly patients in Xiji county of China, to reveal the spatio-temporal distribution of elderly hypertension in Xiji county and to provide a scientific basis for the follow-up development of effective prevention and control measures. The spatial data in the dataset includes the vector data of national highway, provincial highway and towns in Xiji county. Data in the table include (1) Statistics on number of monthly elderly patients with high-risk hypertension in Xiji county from 2015 to 2016; (2) Statistics on the number of elderly patients with high-risk hypertension in each township of Xiji county from 2015 to 2016; (3) Statistics on the morbidity of high-risk elderly patients with hypertension in each township of Xiji county from 2015 to 2016. The dataset is archived in .shp and .xls formats in 25 data files with the data size 302 KB.

Keywords: Xiji county; Elderly people; High-risk hypertension patients; Morbidity

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Dataset Availability Statement:

The dataset supporting this paper was published and is accessible through the *Digital Journal of Global Change Data Repository* at: <https://doi.org/10.3974/geodb.2021.03.11.V1> or <https://cstr.escience.org.cn/CSTR:20146.11.2021.03.11.V1>.

1 Introduction

According to the World Health Organization, the number of people died with cardiovascular and cerebrovascular diseases was as high as 15 million every year, ranking the first among all kinds of death causes, the characteristics of high morbidity, high disability rate and high mortality^[1]. Xiji county is located in the south of Ningxia Hui autonomous region of China,

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at the West foot of Liupan Mountain and the arid hilly region of the Loess Plateau, with low terrain in the South and high terrain in the north, with altitude of 1,688–2,633 m. By the end of 2015, the residential population in Xiji county was 359,085, of which the Han nationality accounted for 42.57%, the Hui nationality accounted for 57.40%, and the Hui nationality was more than the Han nationality^[4]. Xiji county has three towns and 16 townships^[5]. Datasets of elderly hypertension patients in Xiji county represented the incidence and morbidity of elderly hypertensive high-risk patients from 2015 to 2016, and revealed the spatio-temporal distribution of elderly hypertension patients.

2 Metadata of the Dataset

The metadata of the High risk analysis dataset on elderly patients with hypertension In Xiji, Ningxia of China (2015–2016)^[7] is summarized in Table 1. It includes the full name, short name, authors, year of the dataset, data format, data size, data files, data publisher, and data sharing policy, etc.

Table 1 Metadata summary of the High risk analysis dataset on elderly patients with hypertension In Xiji, Ningxia of China (2015–2016)

Items	Description		
Dataset full name	High risk analysis dataset on elderly patients with hypertension In Xiji, Ningxia of China (2015–2016)		
Dataset short name	ElderlyPatients_HypertensionXiji		
Authors	Zhang, M. X. L-8674-2018, Ningxia University, 1014279339@qq.com Wang, Y. J. AAO-8514-2021, Ningxia University, wyj8690@163.com Li, H. L-8078-2018, Shaanxi Normal University, 584001860@qq.com Wang, X. Z., Department of Cardiology, General Hospital of Ningxia Medical University, pingwa1967@sina.com		
Geographical region	Xiji county	Year	2015, 2016
Data format	.shp,xls	Data size	302 KB (131 KB after compression)
Data files	The dataset comprises two parts. One is the spatial data including the vector data of national highway, provincial highway and township in Xiji county of Ningxia. The second are the number of monthly cases in Xiji county between 2015 to 2016, the number of cases in Xiji county between 2015 to 2016, the table of morbidity over 60a in Xiji county between 2015 to 2016		
Foundation	Ningxia Natural Science Foundation of China (2020AAC03114)		
Data publisher	Global Change Research Data Publishing & Repository, http://www.geodoi.ac.cn		
Address	No. 11A, Datun Road, Chaoyang District, Beijing 100101, China		
Data sharing policy	Data from the Global Change Research Data Publishing & Repository includes metadata, datasets (in the <i>Digital Journal of Global Change Data Repository</i>), and publications (in the <i>Journal of Global Change Data & Discovery</i>). Data sharing policy includes: (1) Data are openly available and can be free downloaded via the Internet; (2) End users are encouraged to use Data subject to citation; (3) Users, who are by definition also value-added service providers, are welcome to redistribute Data subject to written permission from the GCdataPR Editorial Office and the issuance of a Data redistribution license; and (4) If Data are used to compile new datasets, the ‘ten per cent principal’ should be followed such that Data records utilized should not surpass 10% of the new dataset contents, while sources should be clearly noted in suitable places in the new dataset ^[8]		
Communication and searchable system	DOI, CSTR, Crossref, DCI, CSCD, CNKI, SciEngine, WDS/ISC, GEOSS		

3 Data Statistics

Taking Xiji county of Ningxia Hui autonomous region of China as the geographical statistical unit, the case data of permanent residents in Xiji county were treated in related hospitals and surrounding hospitals in Ningxia, were selected to calculate the incidence of

hypertension in each town. The clinical data of elderly patients with hypertension for circulatory system diseases in related general hospitals of Ningxia from January 2015 to December 2016 were selected to conduct a retrospective analysis on the general incidence, etiological composition, clinical manifestations, risk factors, target organ damage and other influencing factors of elderly patients with hypertension. In order to analyze the elderly hypertension high-risk patients in Xiji county, The main selection criteria was:

(1) Hypertension level 1, and is accompanied by three or more other risk factors or target organ damage;

(2) Secondary hypertension with three or more other risk factors or target organ damage; Grade 3 hypertension without any risk factors and medical history.

The main information include: gender, age, address, onset time, onset address of elderly patients with high risk. To provide scientific basis for formulating prevention and control strategies and measures through the analysis of the influence factors on the incidence of hypertension in the elderly.

According to the place of residence of the affected population, the total number of elderly people over 60a were registered by the statistical department of each town. The incidence rate in town was calculated by equation (1). The incidence of hypertension in certain region is I , the number of patients in this area is A , the total population of the area is S . The incidence rate of cerebrovascular diseases among people over 60a in each town of Xiji was obtained as follow.

$$I=A\div S\times 1000\% \quad (1)$$

4 Data Results

4.1 Temporal Distribution of High Risk Elderly Patients with Hypertension in Xiji

The data of population incidence in Xiji county from January 2015 to December 2016 were collected monthly. The data of the incidence of high-risk elderly patients in each month were collected and the distribution regularity of the morbidity was estimated. The regularity of morbidity of hypertension changed over time. As shown in Table 2, the number of cases in March is the highest, followed by June and November again. The number of cases in September is the least, followed by February.

Table 2 The number of monthly cases in Xiji county between 2015 to 2016 (person)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2015	55	45	67	56	53	61	53	52	44	45	57	49
2016	57	46	68	59	53	64	50	53	46	47	58	54

4.2 Spatial Distribution of Morbidity of Elderly Hypertensive Patients in Xiji

Through the statistics of the incidence of different hypertension cases in Xiji county, according to the place of residence of the affected population, the total population of each town was inquired. Cartographic expression of incidence and incidence rate of hypertension were given according to the incidence of different ages in different towns of Xiji county. The different incidence data were classified by using the hierarchical color mapping method, and the different grades of color were taken to distinguish different towns. The morbidity of hypertension in different towns were divided into six levels in different years. The morbidity

is high in Xinglong, Jiangtai and Jiqiang in general, and morbidity is low in Shagou, and the incidence of township in Pingfeng is low. As shown in Figure 1 and Figure 2.

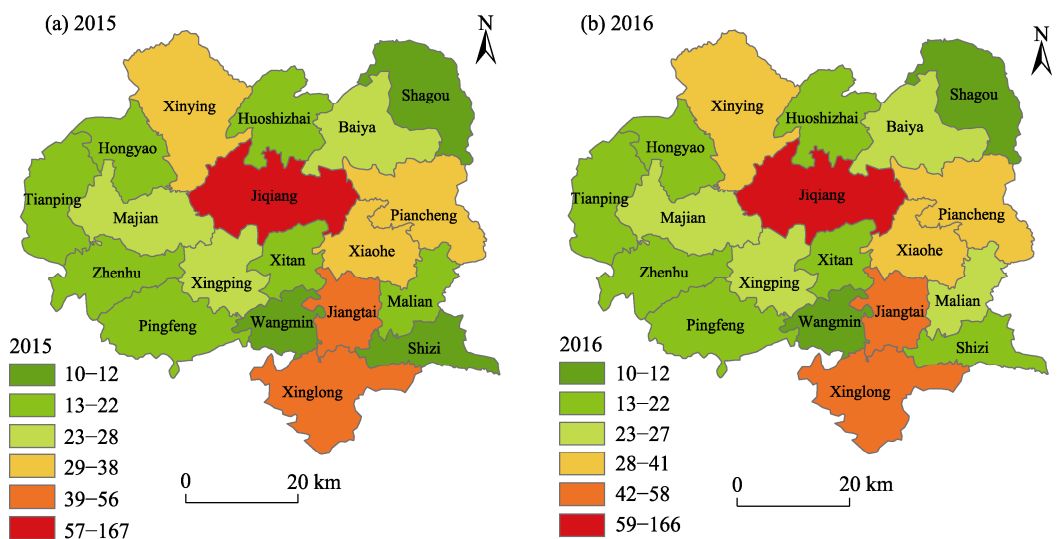


Figure 1 Thematic map of cases in Xiji county from 2015 to 2016

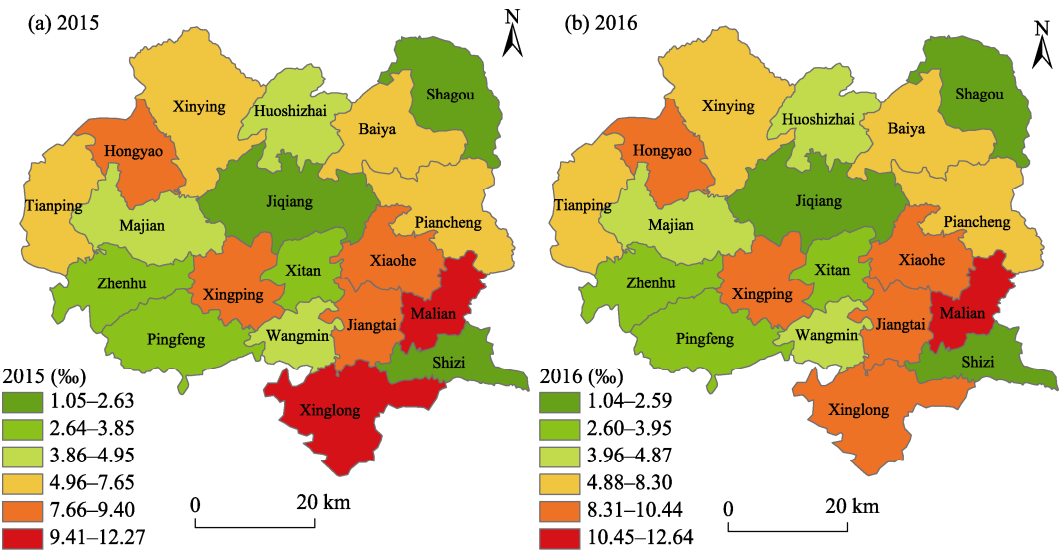


Figure 2 Thematic map of morbidity rate of cases in Xiji county from 2015 to 2016

5 Discussion and Conclusion

Based on geographical statistical units, the number of high risk patients with hypertension in each town of Xiji was calculated, through the analysis of the elderly patients at high risk of hypertension incidence data, and comprehensive analysis of various factors on the risk assessment of elderly patients, to explore the incidence of the elderly patients at high risk of hypertension. By sorting out the occurrence regularity of elderly patients with high risk of hypertension in different seasons and each month, the distribution regularity of hypertension

disease was explored, and the regional environmental factors affecting the occurrence of elderly patients with high risk of hypertension were analyzed.

This study is the first effect of regional geographical environment on human blood pressure health and regional geographical environment changes on the incidence of human hypertension disease in small scale counties in the western region of China with better ecological environment protection. The aim was to raise public awareness, reduce the incidence of adverse cardiovascular events through reasonable protection, thereby reducing the economic burden on families and society, and to provide reasonable recommendations for the government and relevant ministries to develop long-term early warning and prevention policies.

The prevalence of hypertension is higher in cold regions than in warm regions^[12], and higher altitudes are higher than lower altitudes. The main reason is that when the temperature drops in winter, the level of adrenaline in the body rises and the blood vessels on the surface of the body contract to reduce heat release. At the same time, adrenaline may accelerate the heart rate and increase the output of the heart, which will lead to the increase of blood pressure. National hypertension epidemiological survey shows that in north China region of minorities (Manchus, Mongol and Hui Nationality) population of hypertension prevalence is south (Miao, Zhuang, Bouyei, Tujia, Hani, Yi Nationality), high trend for lower from north to south, is likely to be the north cold lead to peripheral vascular contraction, blood pressure to rise. The elderly are also particularly poor at adapting to the environment. When the temperature begins to plummet, their blood vessels will constrict, reducing blood flow and ultimately increasing the heart's ability to load. However, when the heart and brain vessels contracted after cold stimulation, their collateral circulation supply decreased, and the establishment and opening of collateral circulation were affected. When cerebral thrombosis or watershed infarction occurred, collateral circulation could not effectively play its protective role, and it was easy to form infarction lesions. At the same time, cold stimulation can induce coronary artery spasm and lead to acute coronary insufficiency and even myocardial infarction^[14].

Through sorting of the hypertension cases in Xiji county, in terms of population distribution, we found that the elderly patients with high risk of hypertension showed an increasing trend with the increase of age. In this study, patient over 70a are more likely to be affected by temperature and have cardiovascular and cerebrovascular events. In this study, primary data were obtained from hospitals, which were reliable. However, it is estimated that the data were incomplete in the statistics. The data were screened by professional cardiologists, and the data selection was basically reliable.

Author Contributions

Zhang, M. X. designed the algorithms of dataset. Wang, Y. J. Li, H. wrote the data paper. Wang, X. Z. contributed to the data processing and analysis.

Conflicts of Interest

The authors declare no conflicts of interest.

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