Prevalence of Decreased Kidney Function in Chinese Adults Aged 35-74 Years

Jing Chen, MD, MSc

Tulane University School of Medicine
New Orleans, Louisiana, USA

Background

- Chronic kidney disease (CKD) is a major public health burden in Western countries
- Little is known about its impact in developing countries
- Prevalence of CKD in China has not been reported in the general population

Objective

- To estimate the prevalence and absolute burden of CKD in the general adult population in China

Study Population

- International Collaborative Study of Cardiovascular Disease in ASIA (InterASIA) was a cross-sectional study of cardiovascular disease risk factors in a nationally representative sample of the general adult population in China in 2000-2001
- 15,209 Chinese adults aged 35-74 years were included in current study

Measurements

- Serum creatinine was measured by modified kinetic Jaffe method at a central laboratory
- A random sample of 60 serum specimens was sent to the Cleveland Clinic Laboratory for calibrating creatinine measures
- Demographic and medical information, blood pressure, and other covariables were collected using standard methods

Measurements (Cont'd)

- GFR was calculated using simplified MDRD equation:

  Estimated GFR = 186.3 × (serum creatinine) -1.154 × age -0.203 × (0.742 for women) × (1.212 if African American).
- CKD was defined as GFR < 60 ml/min/1.73m²

Statistical Analysis

- Estimated GFR was categorized as the following four groups: normal kidney function (GFR ≥ 90 ml/min/1.73 m^2), mildly decreased kidney function (GFR 60- 89 ml/min/1.73 m^2), moderately decreased kidney function (GFR 30 to 59 ml/min/1.73 m^2), and severely decreased kidney function (GFR <30 ml/min/1.73 m^2)
- Prevalence of decreased kidney function was estimated overall, as well as by sex, age group, geographic regions

Age-Standardized Prevalence of Normal and Decreased Kidney Function (GFR Categories) in China, 2000-2001

	Prevalence of GFR Category (mL/min/1.73 m^2)			
	Normal (≥ 90) Percent (SE)	Mild (60-89) Percent (SE)	Moderate (30-59) Percent (SE)	Severe (<30) Percent (SE)
Total	58.1 (0.5)	39.4 (0.5)	2.4 (0.2)	0.14 (0.04)
Men	69.0 (0.6)	29.7 (0.6)	1.2 (0.2)	0.16 (0.06)
Women	46.5 (0.7)	49.7 (0.7)	3.7 (0.3)	0.12 (0.06)

GFR (mL/min/1.73 m2) estimated using the simplified MDRD study equation.

Age-Standardized and Age-Specific Prevalence of Chronic Kidney Disease (GFR<60 ml/min/1.73m$^{2)}$ in Chinese Adult Population Aged 35-74 by Gender

	Men		Women	
Age	Percent (SE)	Estimated Population	Percent (SE)	Estimated Population
Total	1.31 (0.17)	3,185,330 (417,036)	3.82 (0.27)	8,781,323 (638,339)
35-44	0.24 (0.10)	228,676 (90,385)	1.20 (0.24)	1,066,518 (210,444)
45-54	0.71 (0.23)	523,032 (168,215)	2.74 (0.44)	1,906,839 (313,094)
55-64	1.60 (0.37)	715,815 (164,351)	6.40 (0.81)	2,653,792 (347,103)
65-74	5.80 (1.09)	1,717,807 (333,826)	10.43 (1.25)	3,154,174 (391,788)

Summary

- Prevalence of persons with an estimated GFR <60 ml/min/1.73 m^2 was approximately 2.53% in China, which represented approximately 12 million persons with GFR <60 ml/min/1.73 m^2.
- Prevalence of moderate and severe CKD was lower in China compared to the US but the actual number of patients with GFR < 60 ml/min/1.73 m^2 was much greater.
- Burden of CKD in China was lower in men than in women, and in younger than in older individuals.
- Prevalence of CKD was significantly higher in south compared to north China.

Conclusions

- Our study indicates that CKD is a substantial health burden in Chinese adult population.
- Actual prevalence of CKD in China is probably higher than that we reported because CKD patients with proteinuria and normal or mildly decreased GFR were not included in our CKD prevalence estimates.
- These results underscore the need to establish a national program for the detection, prevention, and treatment of CKD aimed at reducing morbidity and mortality from ESRD, cardiovascular disease and premature death in China.

An update on CKD Relevance in China

- National CKD detection and surveillance initiatives in China
- Data on common predisposing conditions
- Ongoing and future programs


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乌鲁木齐
黑龙江
哈尔滨
吉林
长春
辽宁
沈阳
内蒙古
呼和浩特
北京
天津
河北
山西
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海口
海南岛
南海诸岛

Screening Protocol

Questionnaires

- Sociodemographic data
- Personal and family health history
- Lifestyle risk factors
- History of special infection
- History of nephrotoxic medications

Measurements

- Height, weight
- BP Glu
- Lipids profile
- HBV Ag
- Hematuria, pyuria & microalbuminuria
- Scr /eGFR

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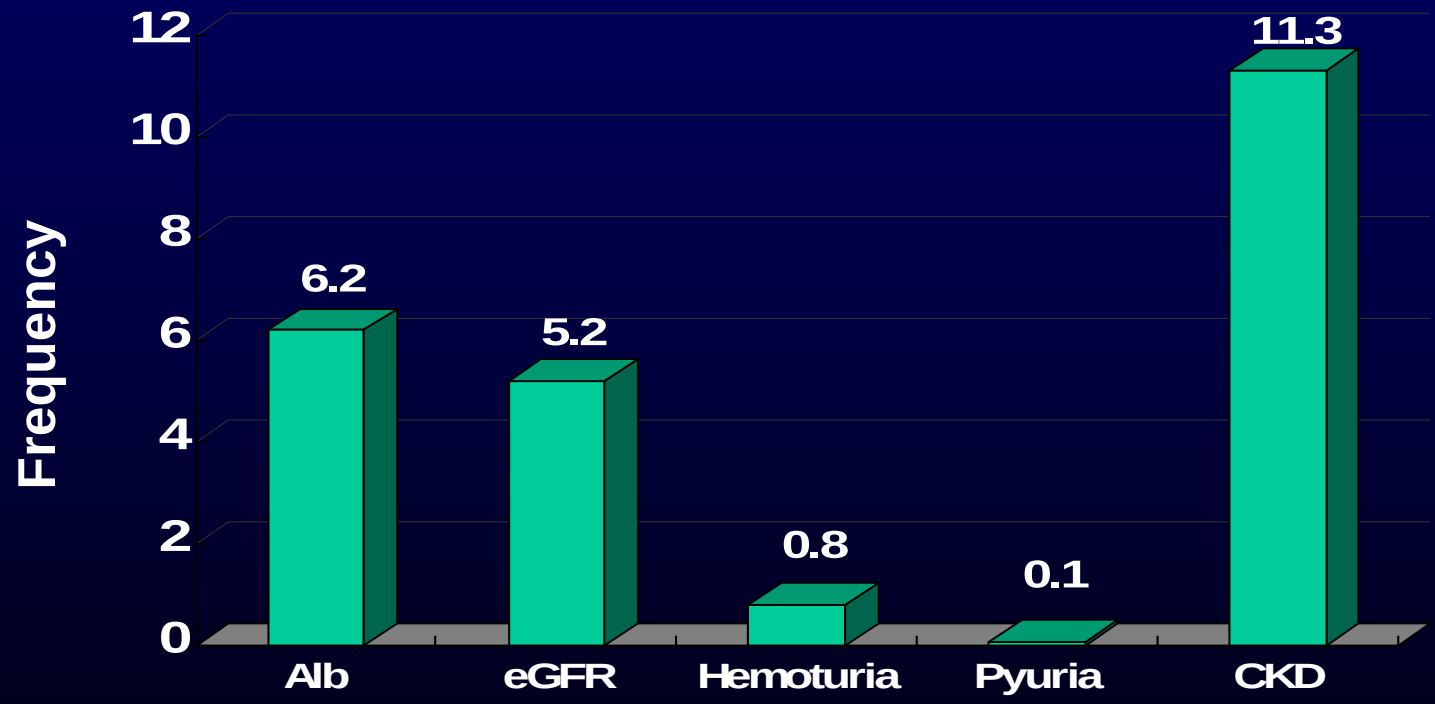
Result of screening at Beijing urban resident



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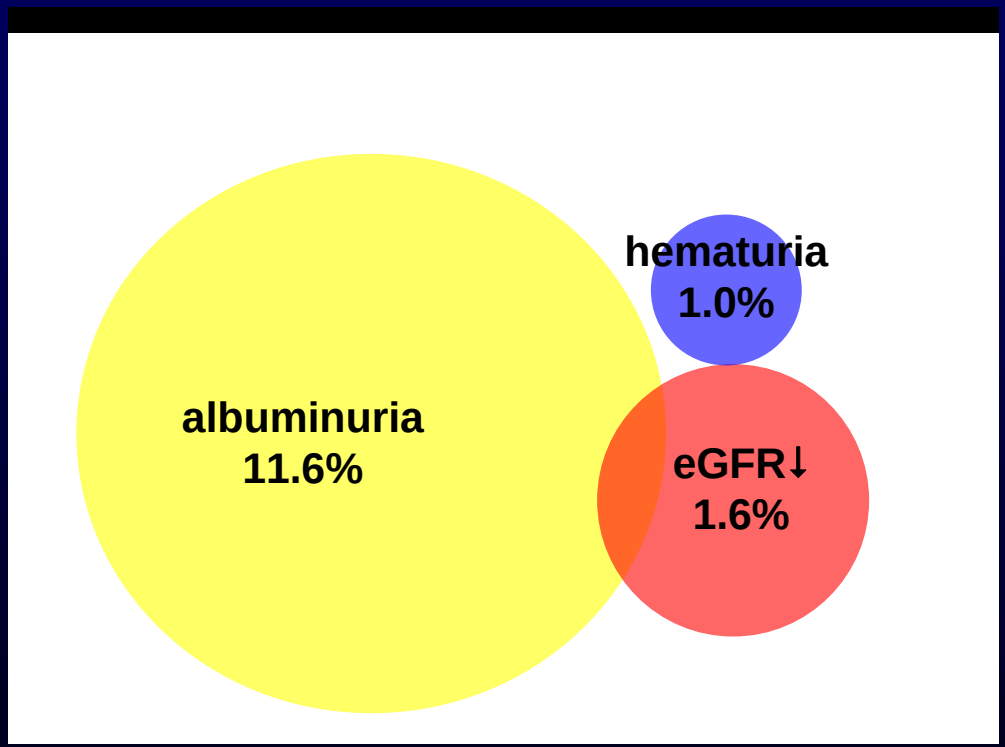
Result of screening at rural resident



Prevalence	**11.6%**
Awareness	**15.7%**

- Adjusted for age and gender

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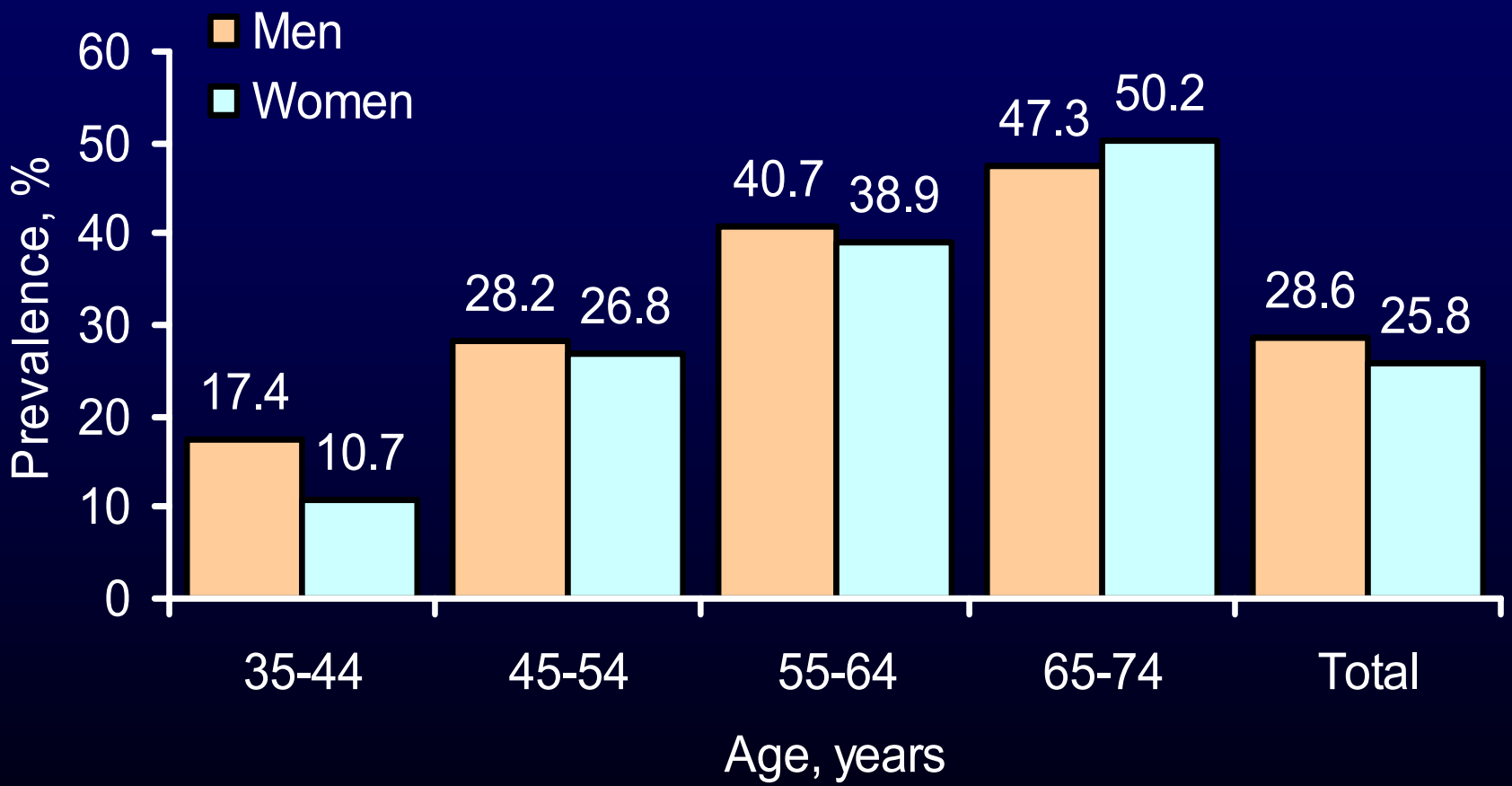
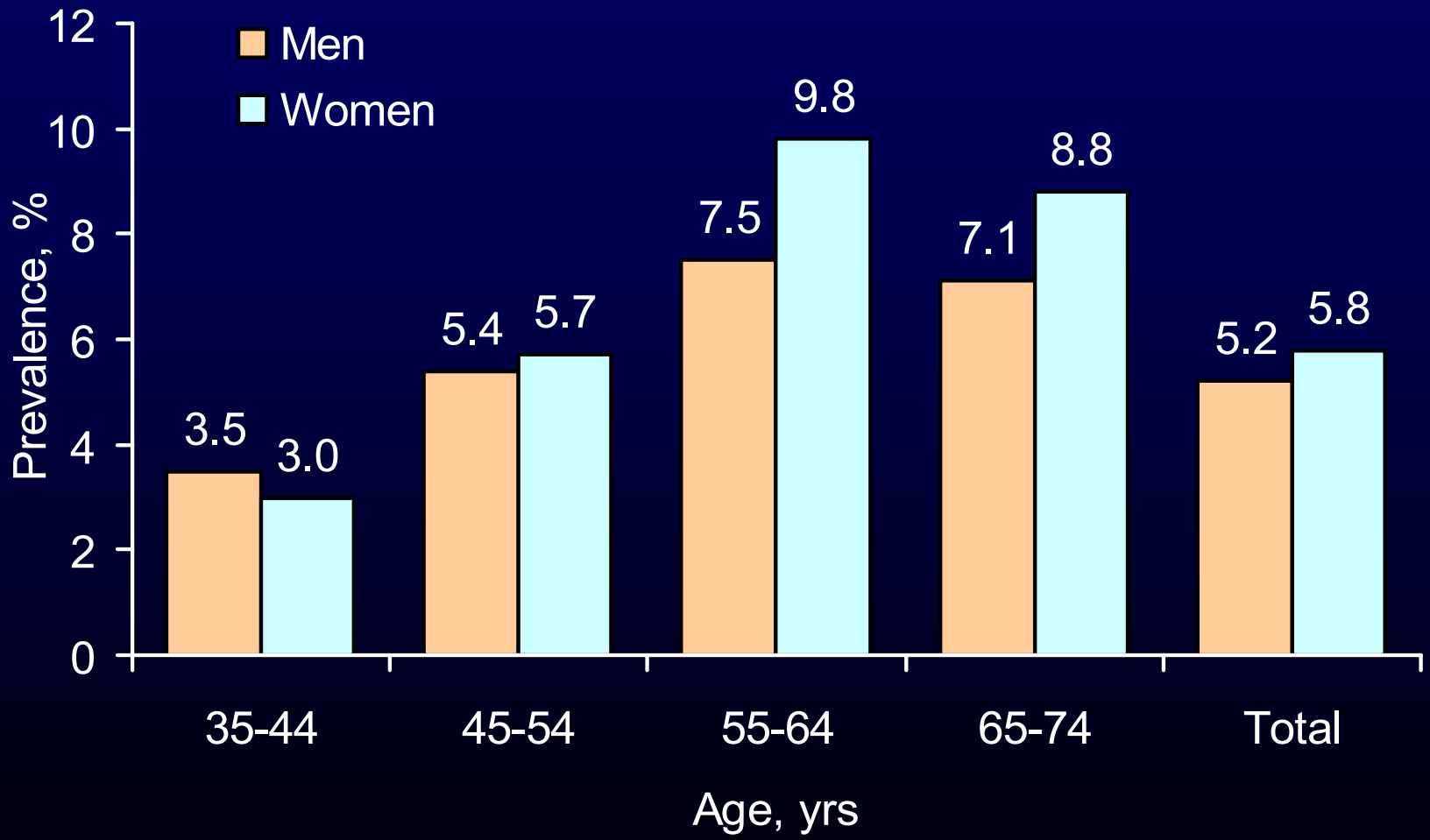
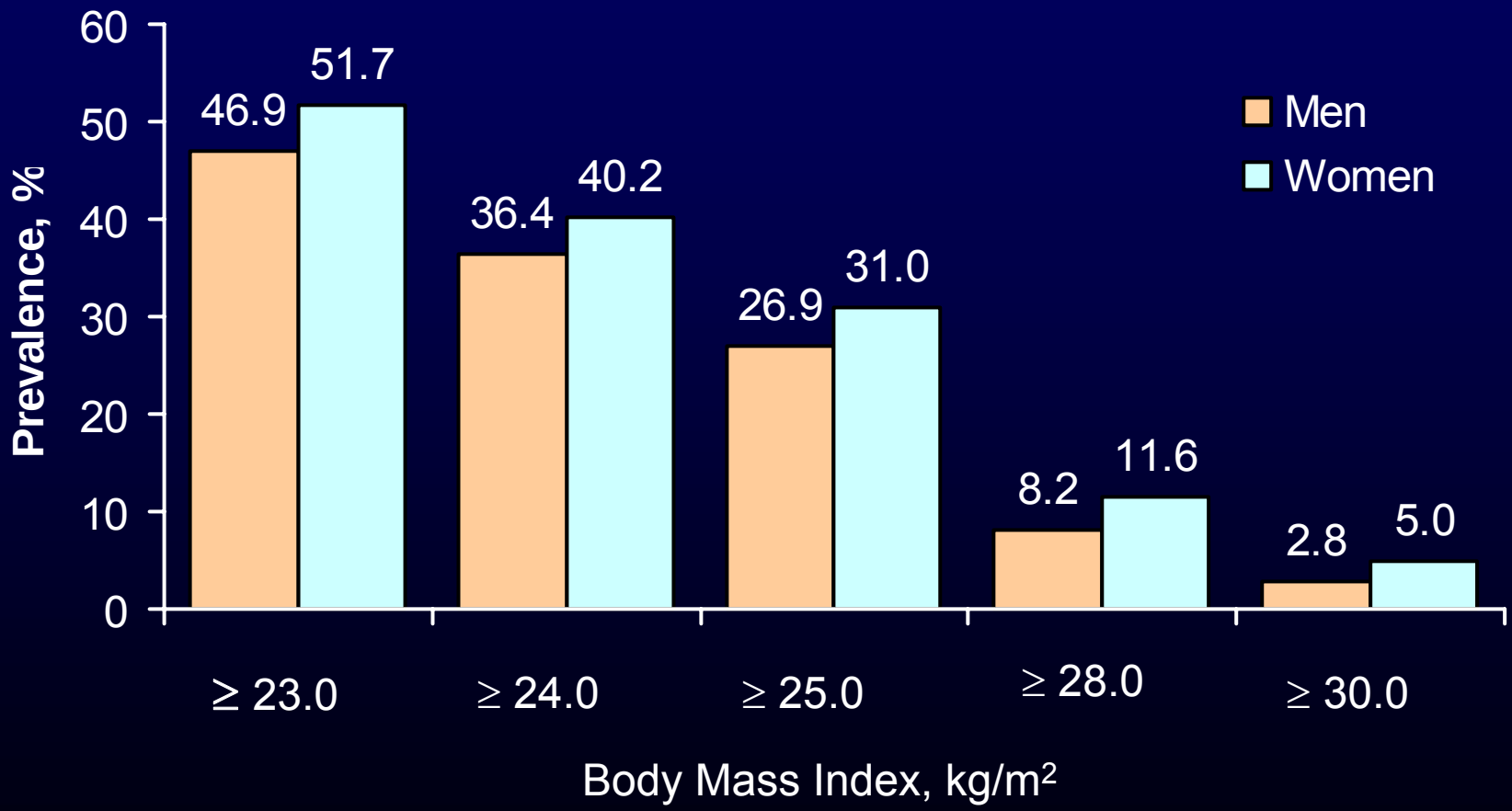
Prevalence of Hypertension in Chinese Adults Aged 35-74 Years in 2000-2001



Prevalence of Diabetes in Chinese Adults Aged 35-74 Years in 2000-2001

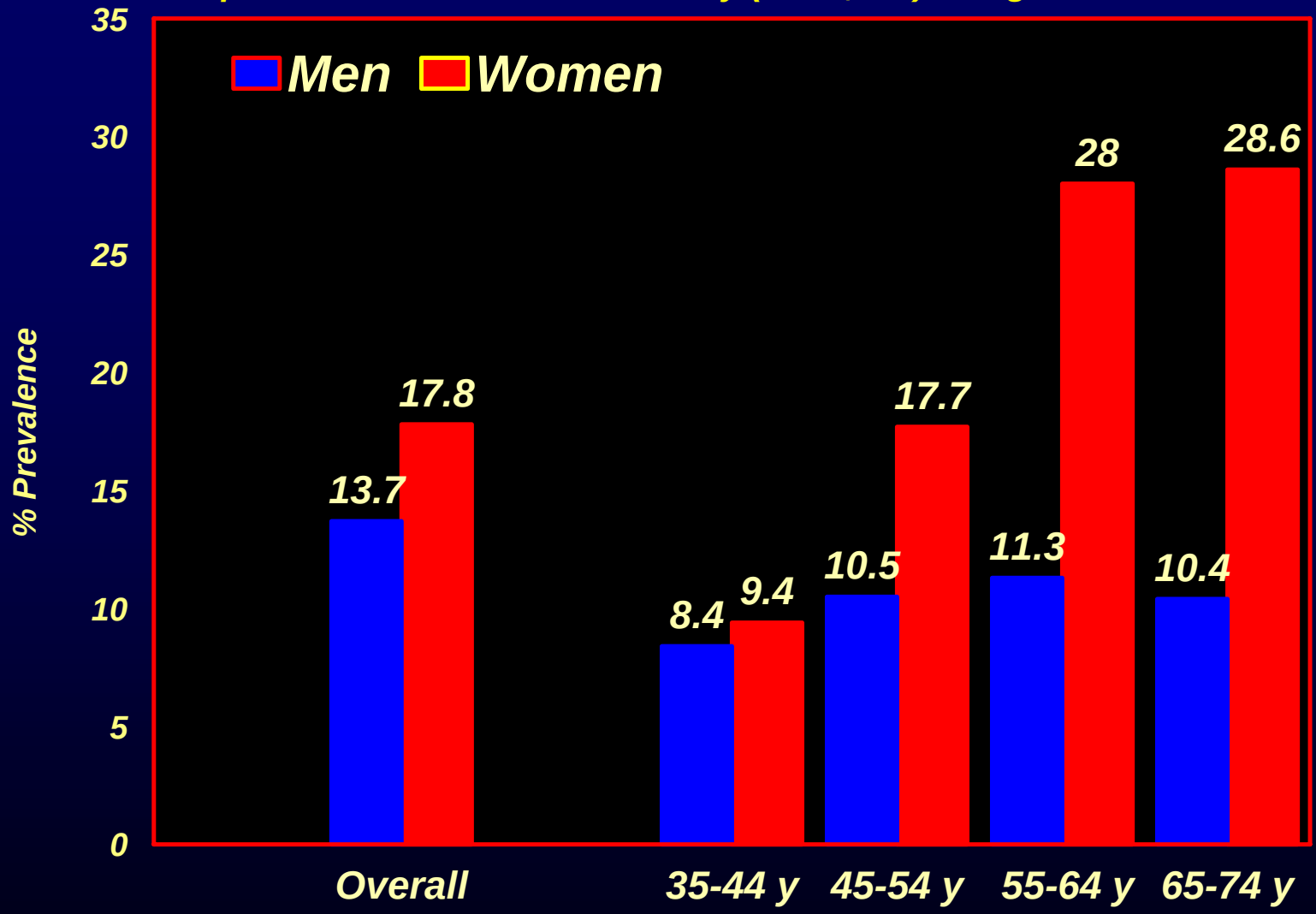


Age-Standardized Prevalence of Body Mass Index Cut-points Among Men and Women Aged 35-74 Years in China, 2000-2001



Prevalence of the Metabolic Syndrome in Chinese Adults

Experience in the InterASIA Study (N=15,838) using NCEP Criteria



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