

14th FCMS Conference STROKE SYMPOSIUM

Developed in collaboration with the Chinese-
Canadian Council, Heart & Stroke Foundation of
Ontario

Toronto, CANADA
September 27th, 2008

Co-Chairs:

Dr. Joseph Y. Chu

Dr. Sunhoo Foo



Background

- Chinese is the largest visible minority group in Canada
- 2001 Stats Canada data

	Total Chinese	Visible Minority (%)
Canada	1,094,700	27.5%
Toronto	409,530	23.9%
Vancouver	342,665	42.7%

CANADA IS ONE OF MOST ETHNICALLY DIVERSE COUNTRIES IN THE WORLD

BACKGROUND

NUMBER (%) CHINESE IN ONTARIO AND CANADA

	1996	2001	2006
Ontario	391,070 (3.67%)	481,500 (4.27%)	576,960 (4.80%)
Canada	2,579,920 (3.01%)	1,029,415 (3.47%)	1,216,410 (3.89%)

Objectives

- Review current research projects on stroke among Chinese residing in Toronto and New York city.

Drs. J.Y. Chu & Sunhoo Foo

- Current management strategies in intracranial vascular stenosis.

Dr. D. Bonovich

- Smoking cessation project among Chinese-Americans in San Francisco Bay area.

Dr. C. Wong

Stroke Among Chinese Canadians: The Toronto Experience- 1990-2007

Joseph Y. Chu, MD, FCPC, FACP, FAHA
Assistant Professor of Medicine (Neurology),
University of Toronto, Canada

Jason K. Chu, B.Sc, M.Sc.
Faculty of Medicine, St. Louis University, Missouri

Derek K. Chu, B.HSc.
Faculty of Medicine,
McMaster University, Canada

Arthur G. Chung, B.Sc, MD
Faculty of Medicine, U. of Western Ontario,
Canada



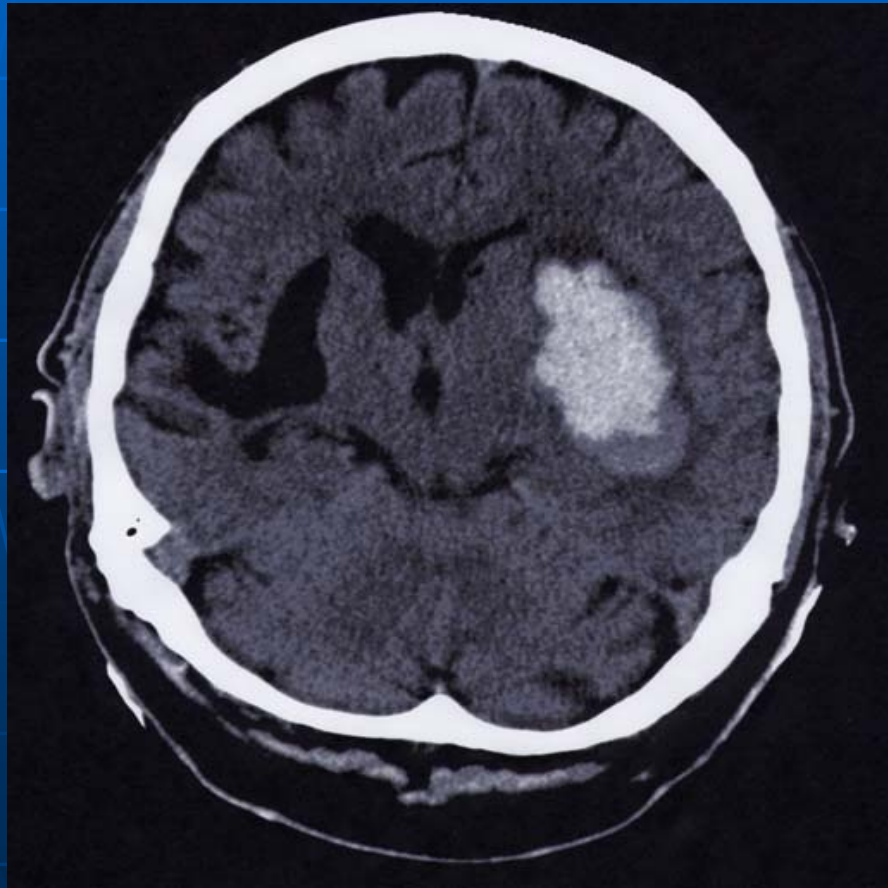
Disclosure

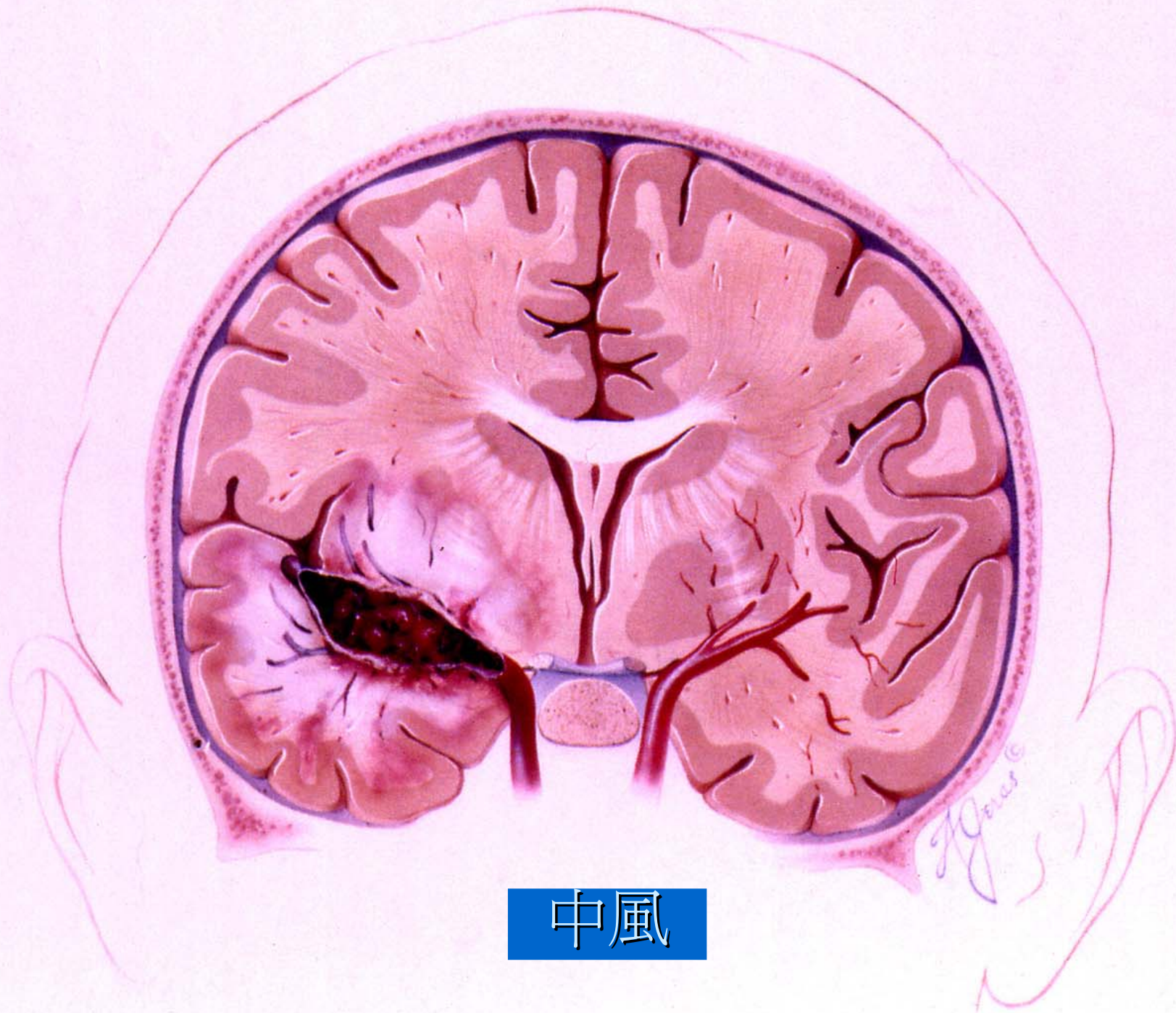
- Authors received financial support in the form of summer student research scholarship from the Chinese-Canadian Council, Heart & Stroke Foundation of Ontario, 1999.
- A research Grant from Institute of Clinical Evaluative Sciences (ICES), University of Toronto, 2000.

Objectives

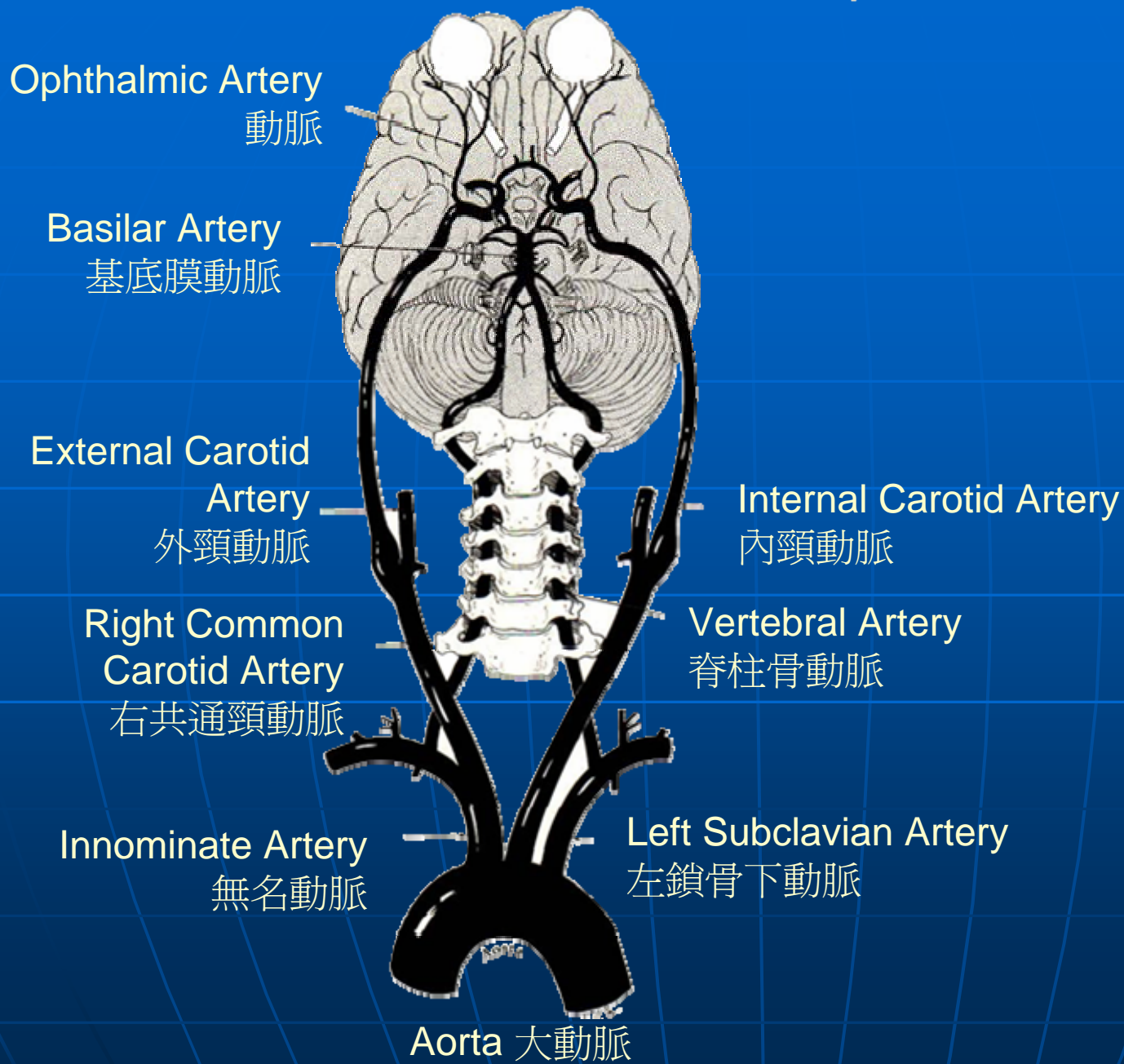
- (1) Epidemiology of Stroke among Chinese-Canadians: from office to the hospital studies.
- (2) Survey of Knowledge and Awareness of Stroke & Heart Diseases among Chinese-Canadians.
- (3) Stroke in Chinese-Canadians with Diabetes Mellitus.

64 yo man:
HBP + acute L. BG ICH
10 years ago R. BG ICH





中風



**EPIDEMIOLOGY OF
CEREBROVASCULAR DISEASES
AMONG CHINESE-CANADIANS :
A NINE-YEAR STUDY OF
HOSPITALIZED PATIENTS**

JY Chu, JV Tu, JK Chu, AG Chung
Trillium Health Centre and ICES
University of Toronto
38th CCNS Meeting, June 20th,
2003

- It is generally known that the pattern of cerebrovascular diseases varies among different Race and Sex

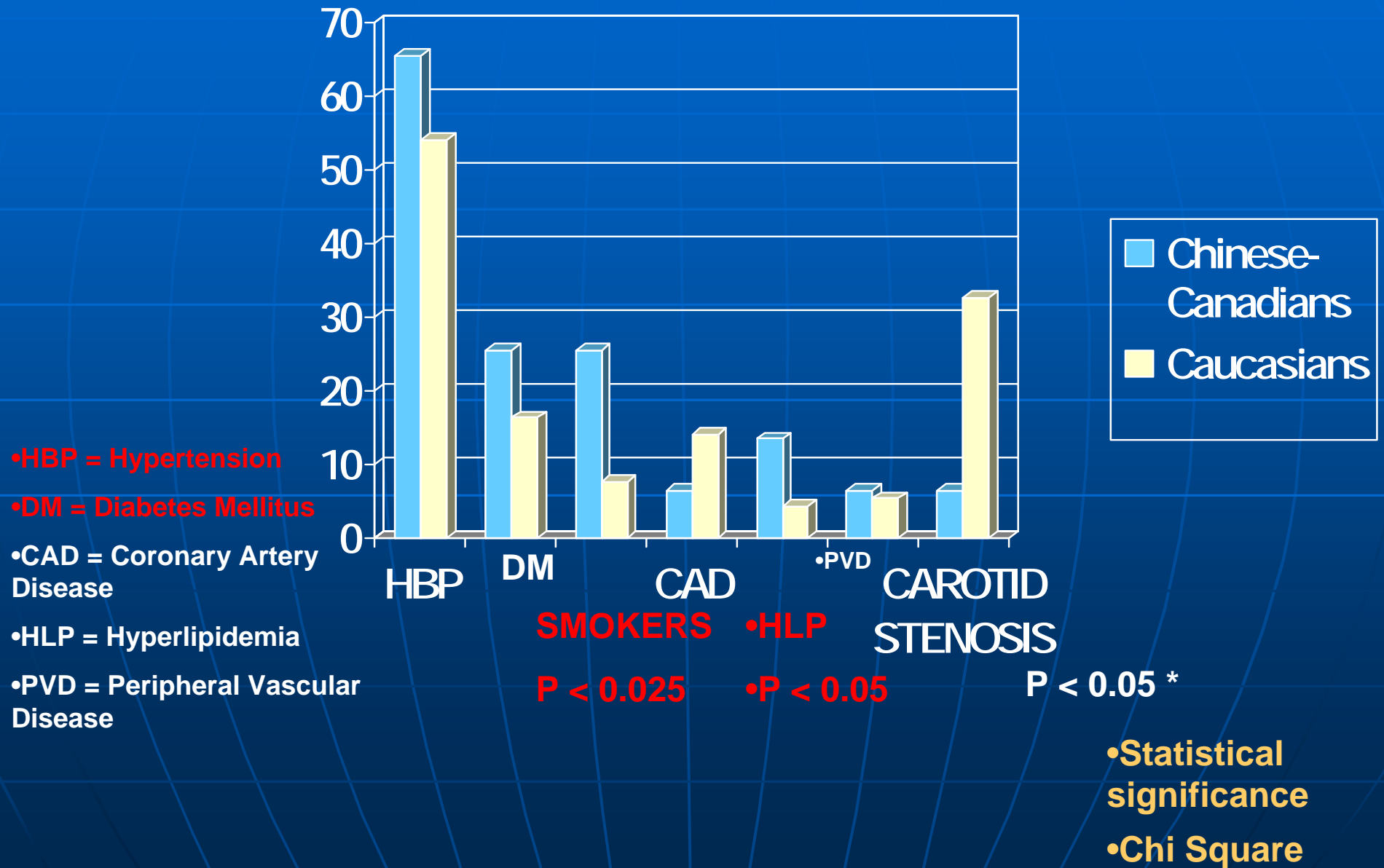
[Caplan,STROKE17(4);1986]

- In 1993 and 2001, preliminary retrospective studies had shown different stroke characteristics among Chinese-Canadians

[Chu, CJNS 20:(S-2) 1993 and CJNS 28:(S-2), 2001]

■ STROKE RISK FACTORS

Chu et al, Neurology Asia 2006



OBJECTIVES OF CURRENT STUDY

- To study the Stroke epidemiology and characteristics of **hospitalized** patients of Chinese ethnicity compared to a case-mix non-Chinese cohort admitted to two large hospitals in Toronto from April 1, 1990 to March 31, 1998

METHODS

- Retrospective analysis of charts at Trillium Health Centre and Toronto Western Hospital
- Patients admitted with a diagnosis of "Stroke" or "CVA" between 1990 and 1998 (ICD-9 Classification)
- Data were collected using the Ontario Coordinated Stroke Registry form and analyzed statistically at Institute of Clinical Evaluative Sciences (ICES)

RESULTS

- Study sample number : 349
- Chinese : 142 Non-Chinese : 201
Number with missing ethnicity : 6
- Cases were matched for age , sex
and time of admission

FIGURE 1: DEMOGRAPHICS

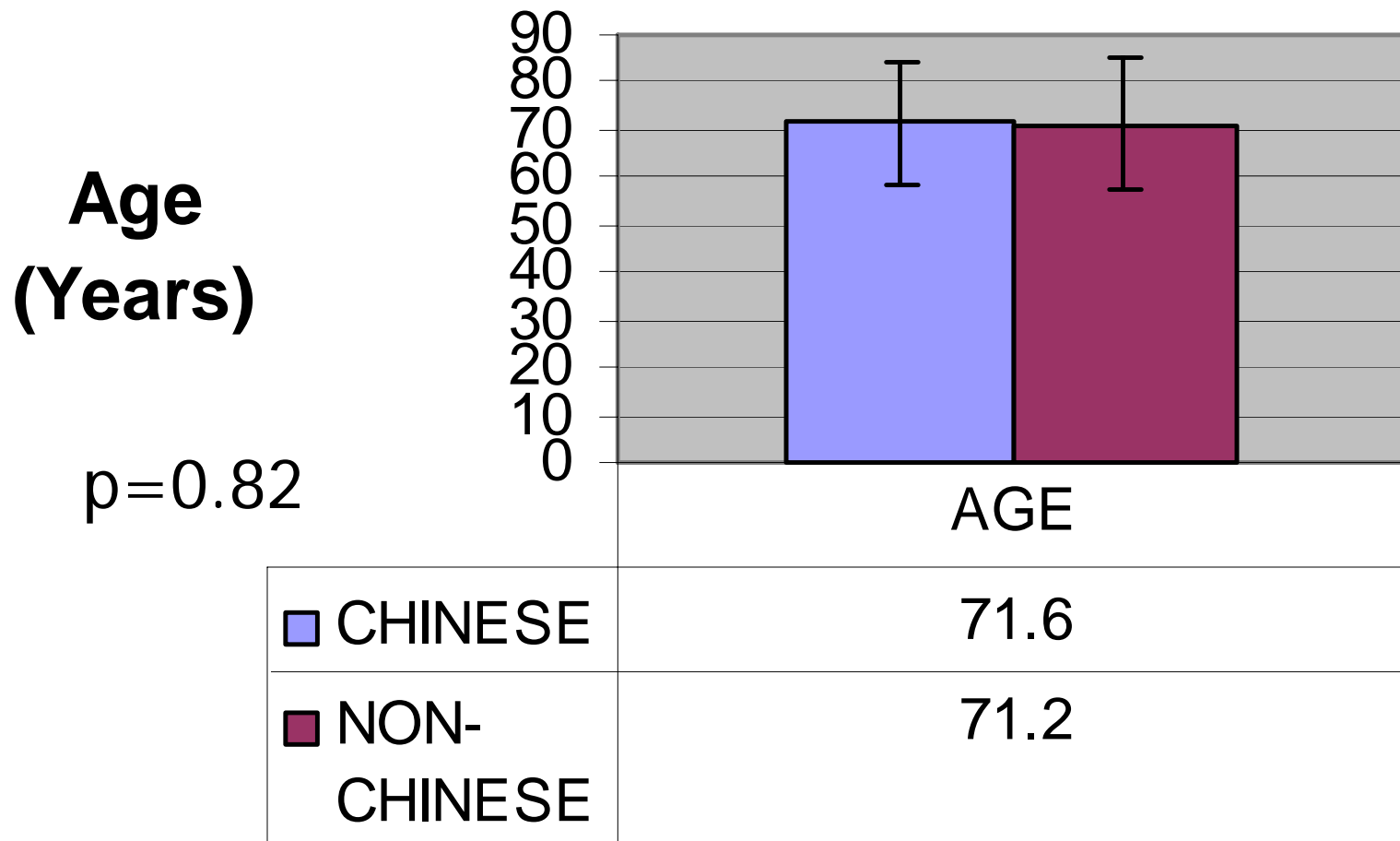
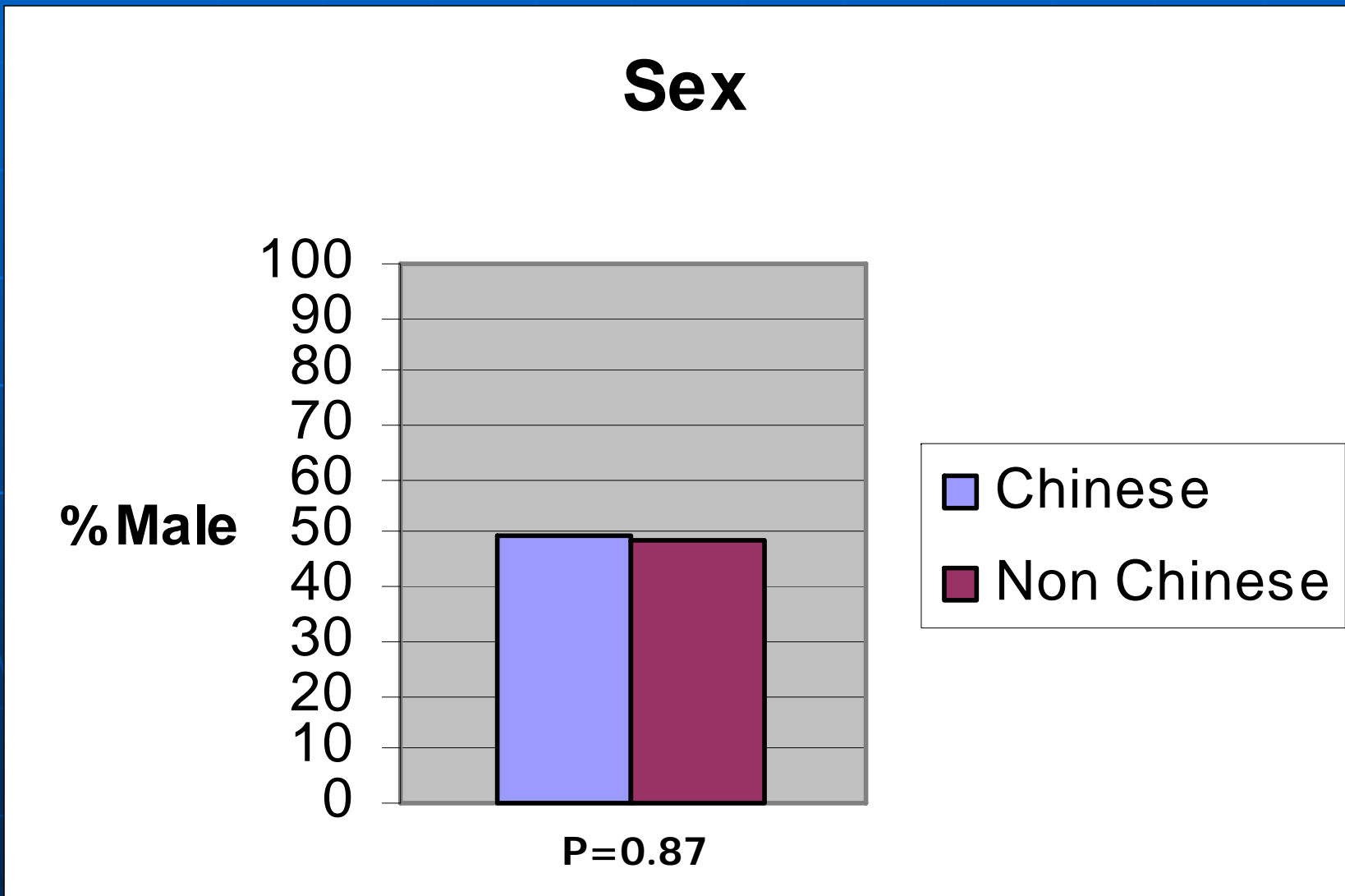
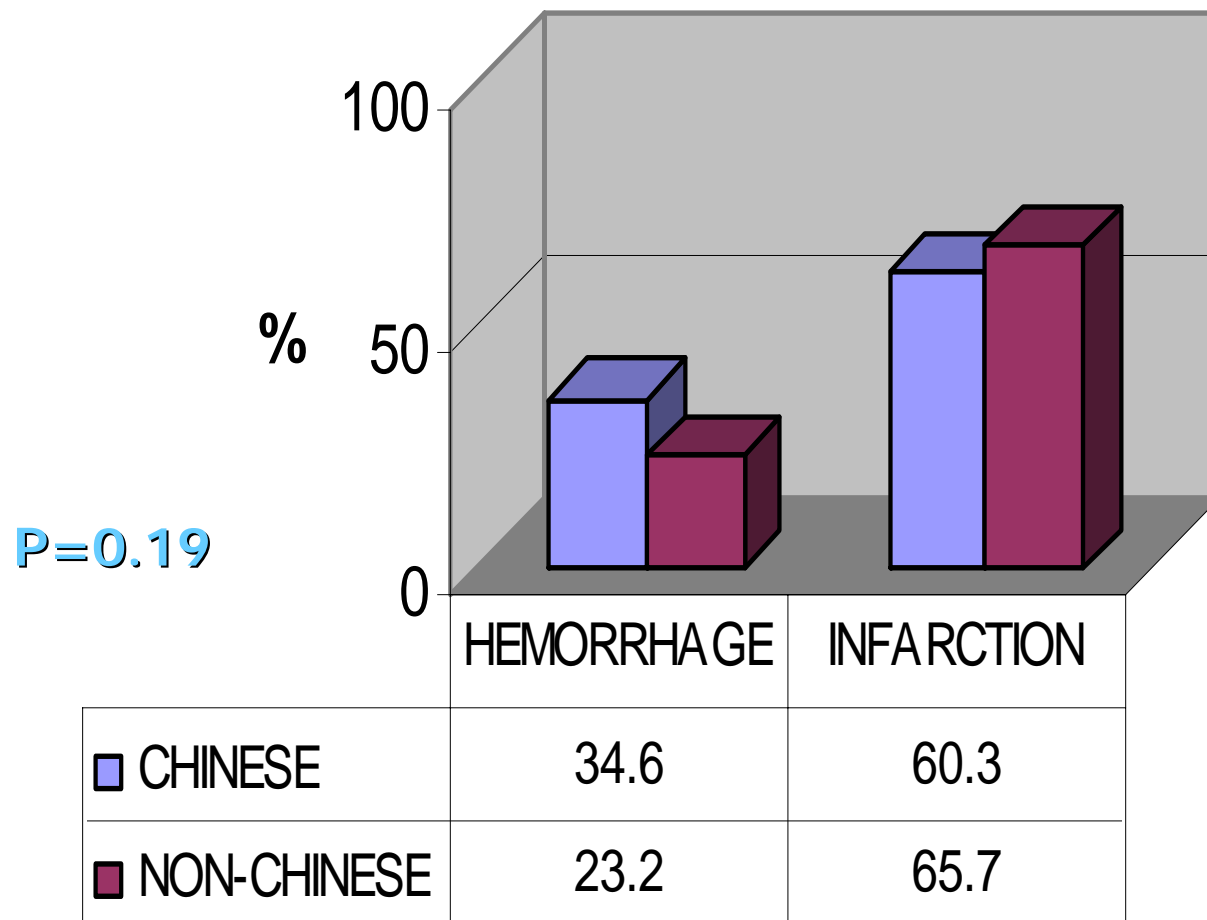


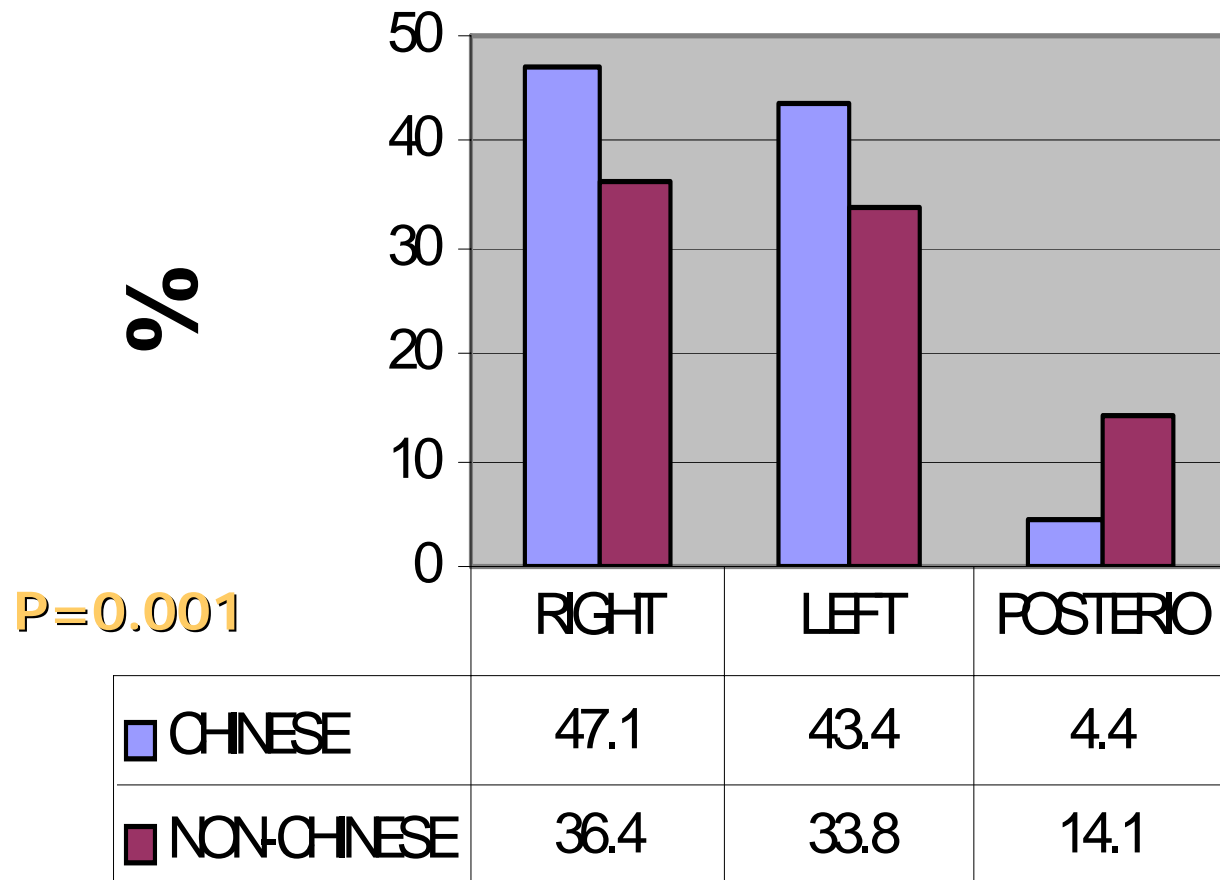
FIGURE 2: DEMOGRAPHICS



STROKE TYPES BY CT/MRI



STROKE LOCATION



MEDICAL HISTORY

HBP

* P=0.04

SMOKE

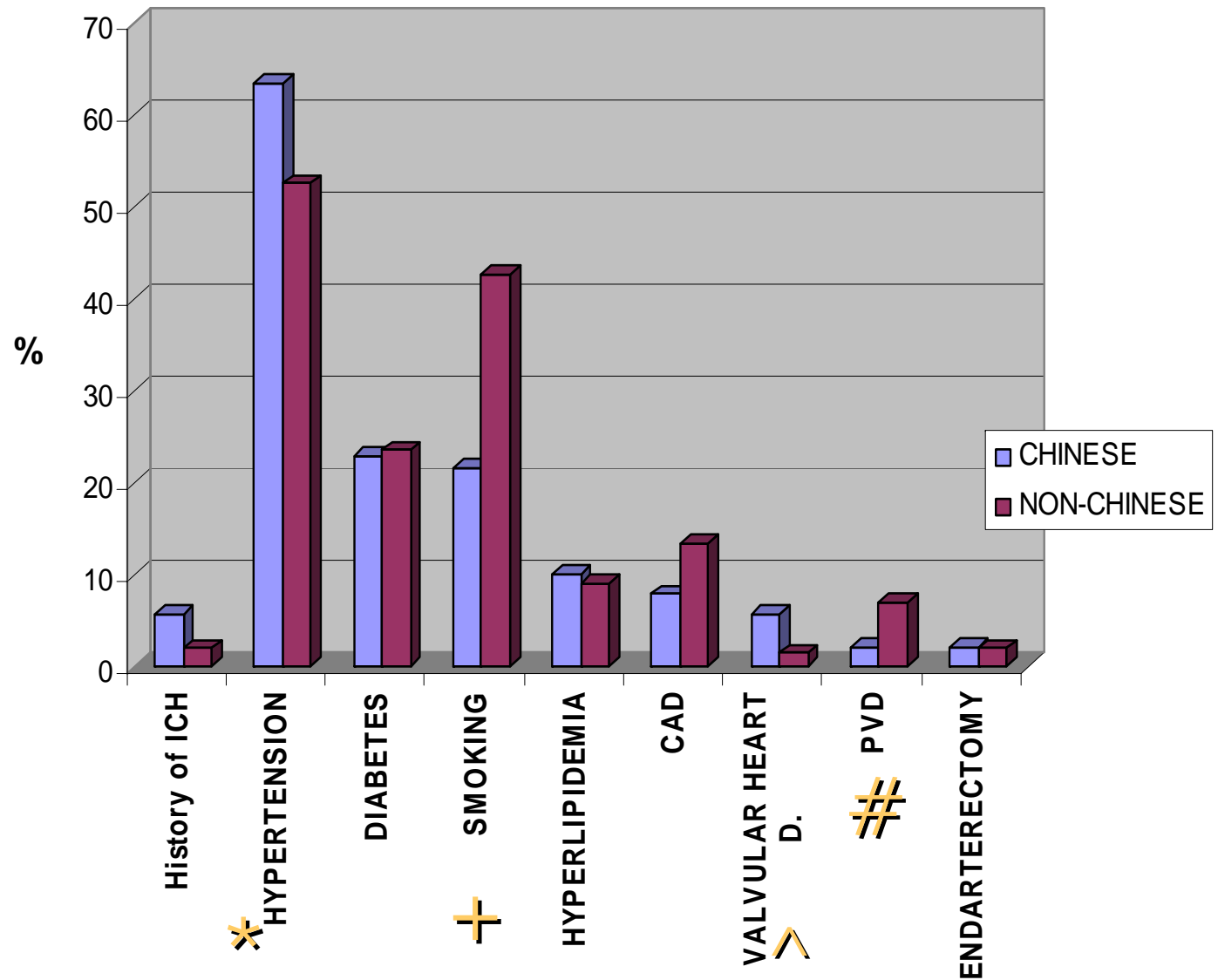
+ P=0.0002

VALVE

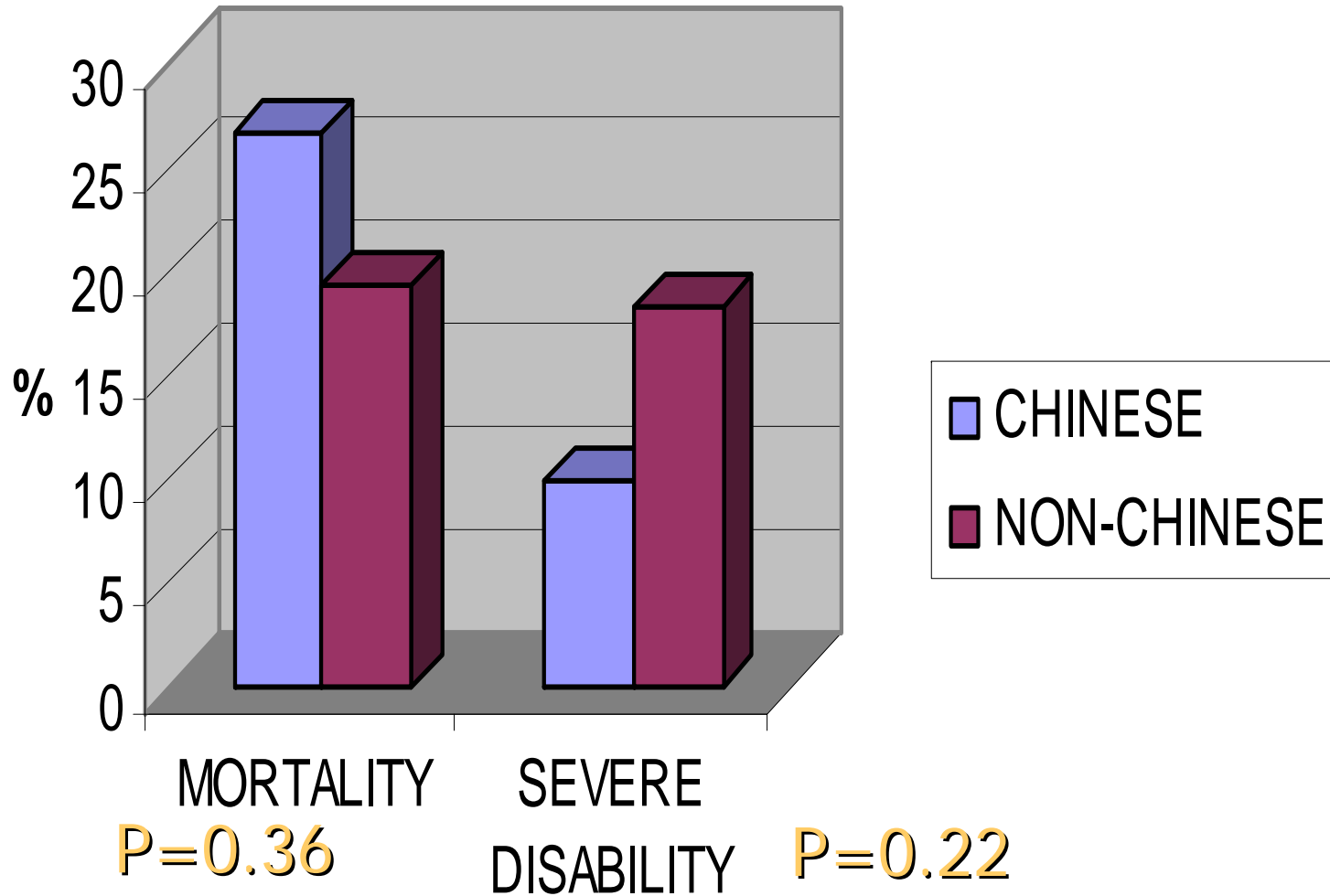
^ HD
p=0.06

PVD

p=0.04



MORTALITY & MORBIDITY



CONCLUSIONS (1)

- In this pilot case-mix retrospective study of hospitalized patients with stroke, Chinese-Canadians have higher frequency of :
 - * Hypertension
 - * Valvular Heart Disease
 - * A trend towards past history of ICH

CONCLUSIONS (2)

- Chinese-Canadians have lower frequency in:
 - * Coronary Heart Disease
 - * Peripheral Vascular Disease
 - * Obesity
 - * Smoking

CONCLUSION (3)

- There was no statistical significance of in-hospital mortality and severe disability between Chinese and Non-Chinese stroke patients.
- Higher in-hospital mortality in both groups was found in those with ICH and past history of smoking.

Objectives

- (1) Epidemiology of Stroke among Chinese-Canadians: from office to the hospital studies.
- (2) Survey of Knowledge and Awareness of Stroke & Heart Diseases among Chinese-Canadians.
- (3) Stroke in Chinese-Canadians with Diabetes Mellitus.

Awareness of Heart Disease and Stroke among Ethnic Chinese in Canada 2004

Dr. Chi-Ming Chow, Dr. Joseph Chu
Dr. Jack Tu, Dr. Gordon Moe*
28th March, 2004

Chinese Canadian Council
Heart and Stroke Foundation of
Ontario

Background

- Chinese is the largest visible minority group in Canada
- 2001 Stats Canada data

	Total Chinese	Visible Minority (%)
Canada	1,094,700	27.5%
Toronto	409,530	23.9%
Vancouver	342,665	42.7%

Background

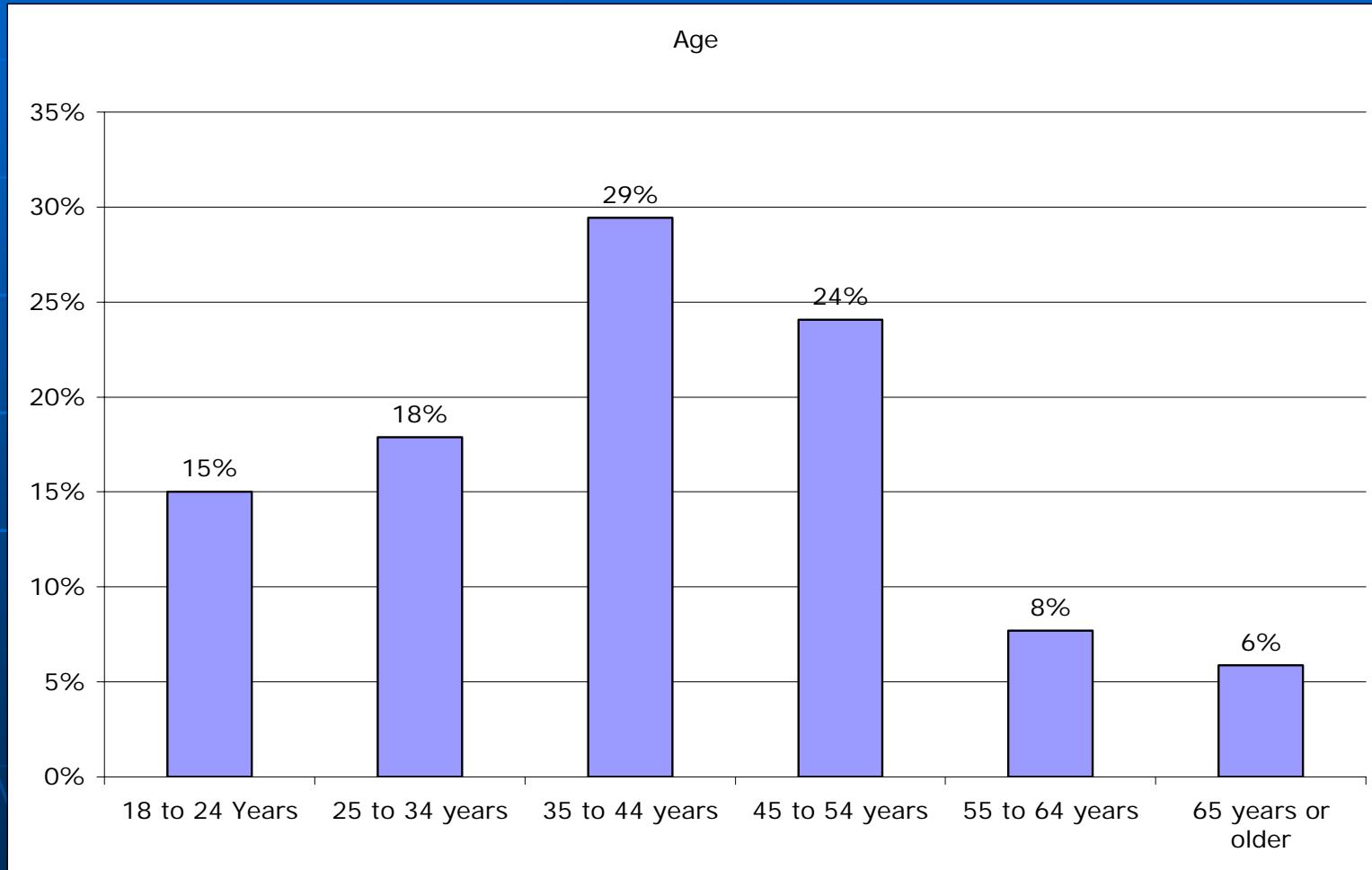
- However, little is known about the Canadian Chinese awareness of ...
 - Cardiovascular disease risk factors
 - Signs and symptoms of heart attack and stroke
 - Cardiovascular disease burden
 - Health habits & attitudes
 - Source of health information
- in this mainly immigrant population

Methodology

- Random telephone interviews (10 minute) conducted by Apex Research
- Sponsored by Pfizer Inc. & CCC HSFO
- Fieldwork period: 3rd to 14th Feb., 2004
- Adults aged 18+, Chinese ethnic origin
- 503 from Greater Toronto
- 501 from Vancouver

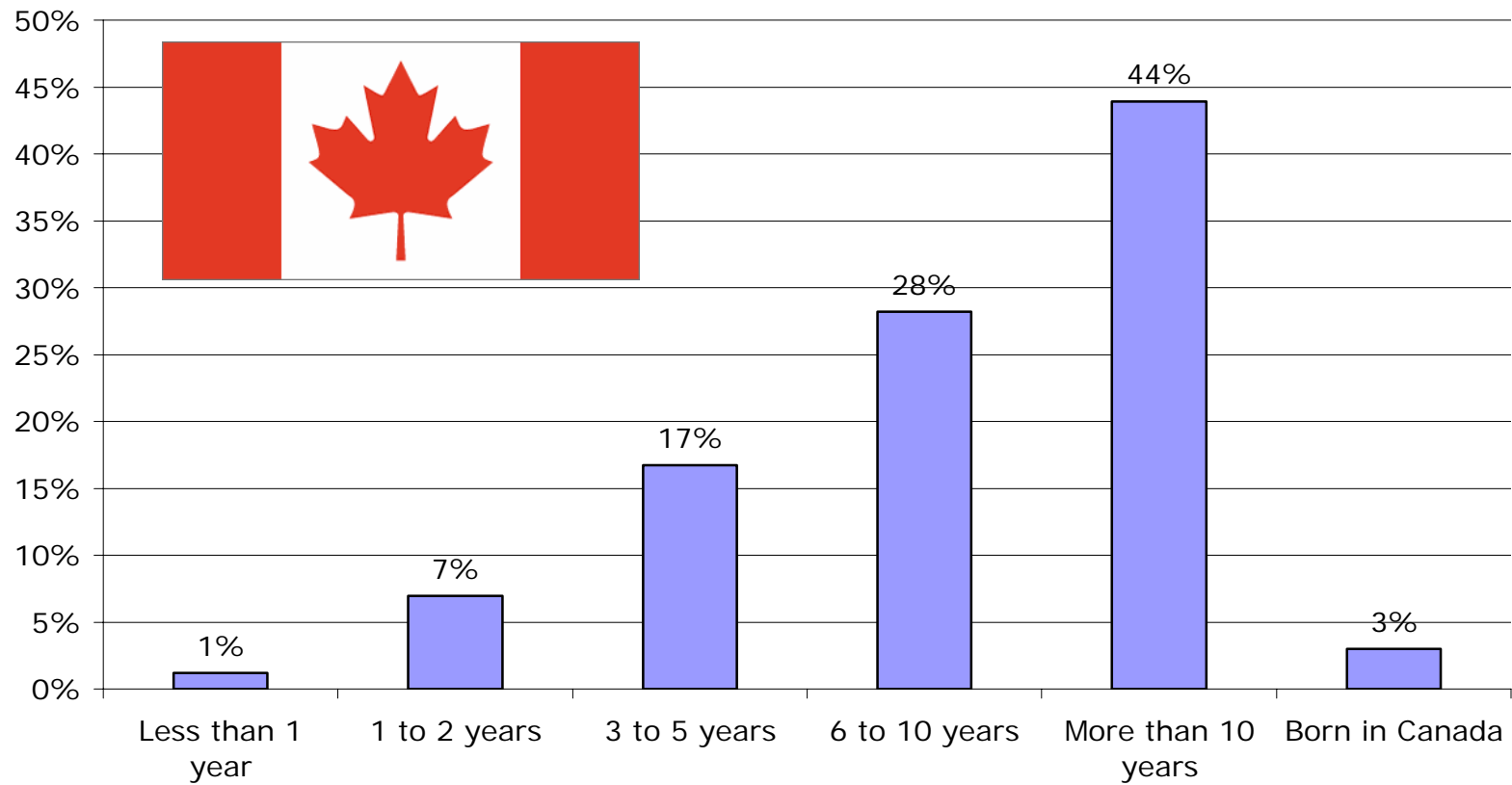
When $n = 500$, the margin of error is $\pm 4.5\%$ at a confidence of 95%

Age

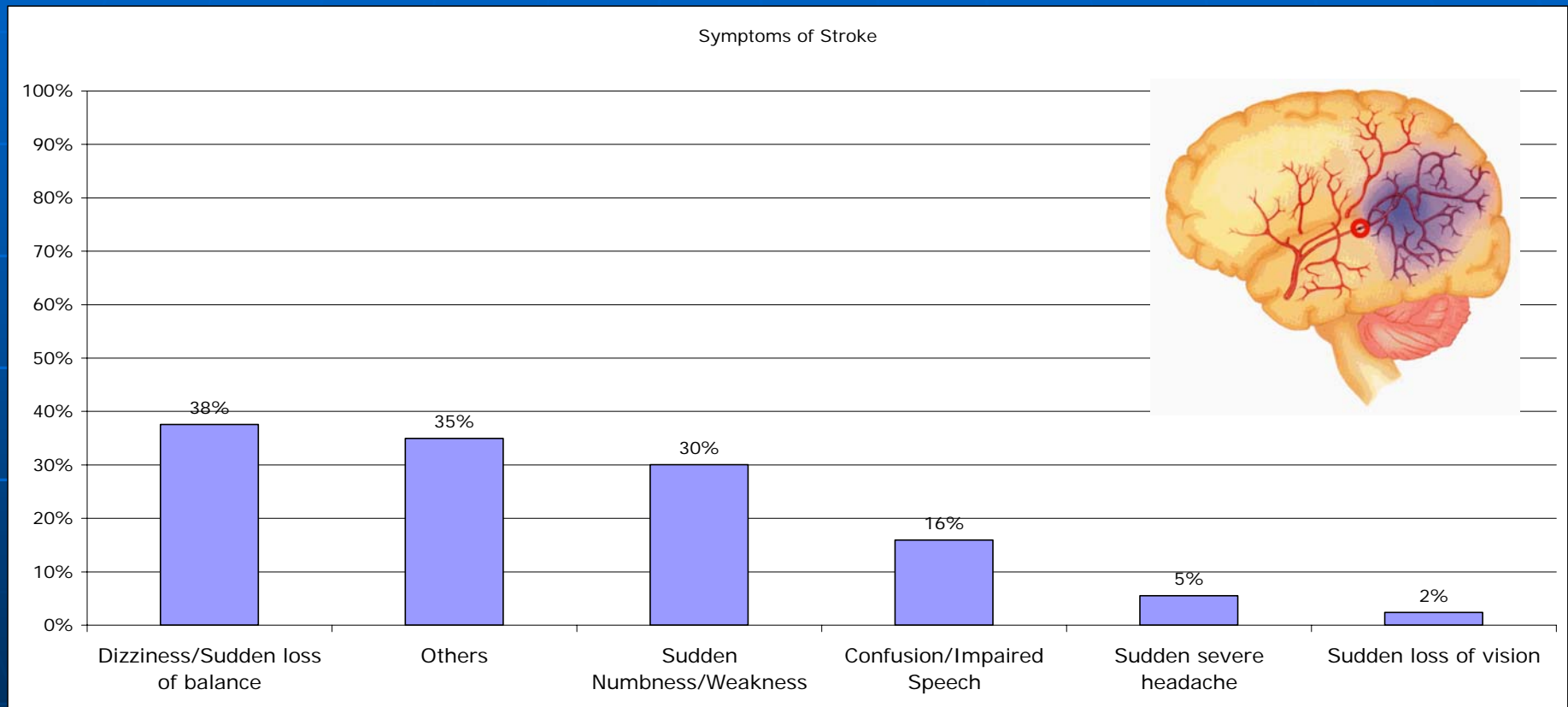


Years in Canada

Years in Canada

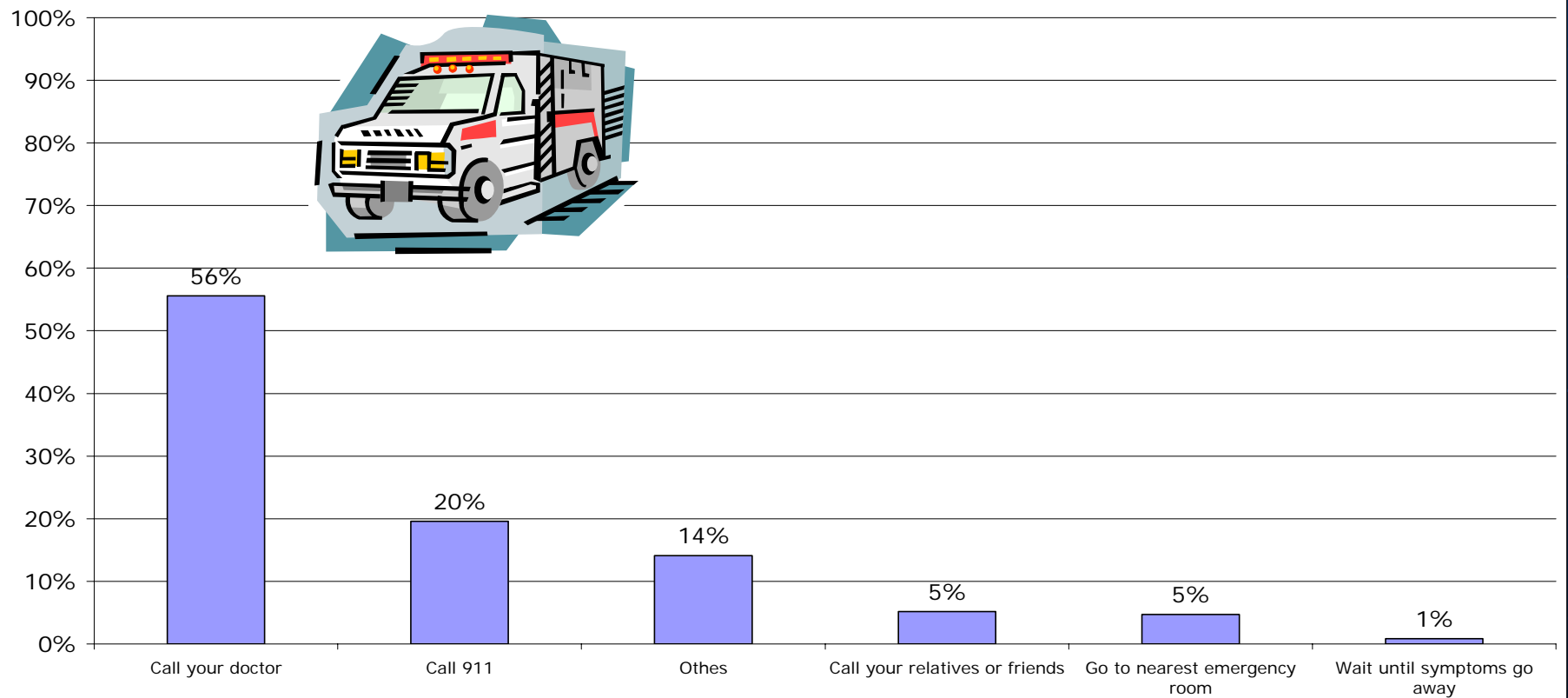


Awareness of Stroke Symptoms



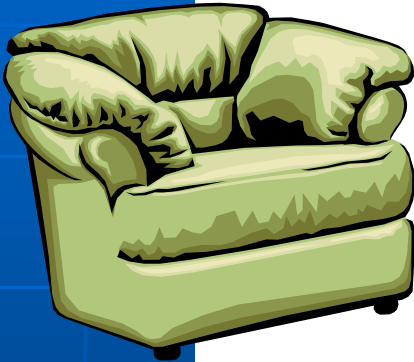
What to do in case of heart attack or stroke?

The first thing you do when experiencing heart attack or stroke

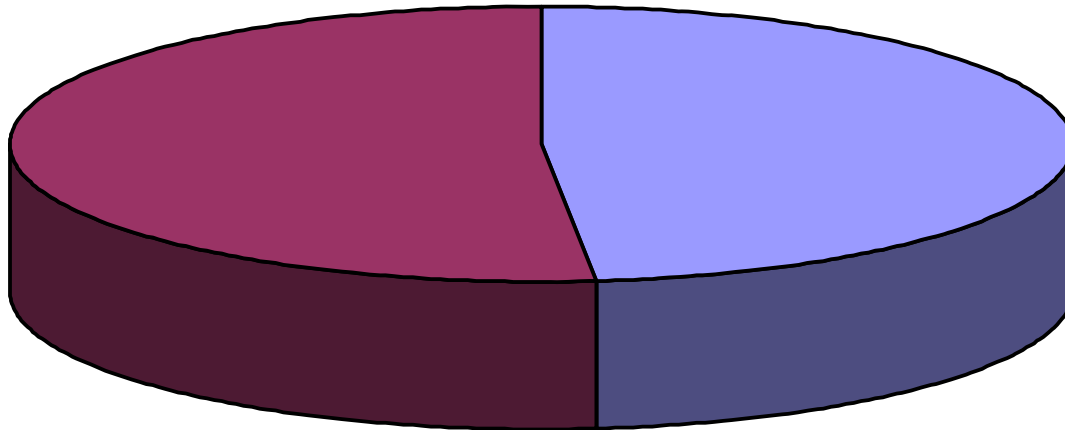


Do you exercise at least 20 minutes 3 times a week?

Do you exercise at least 20 minutes 3 times a week?



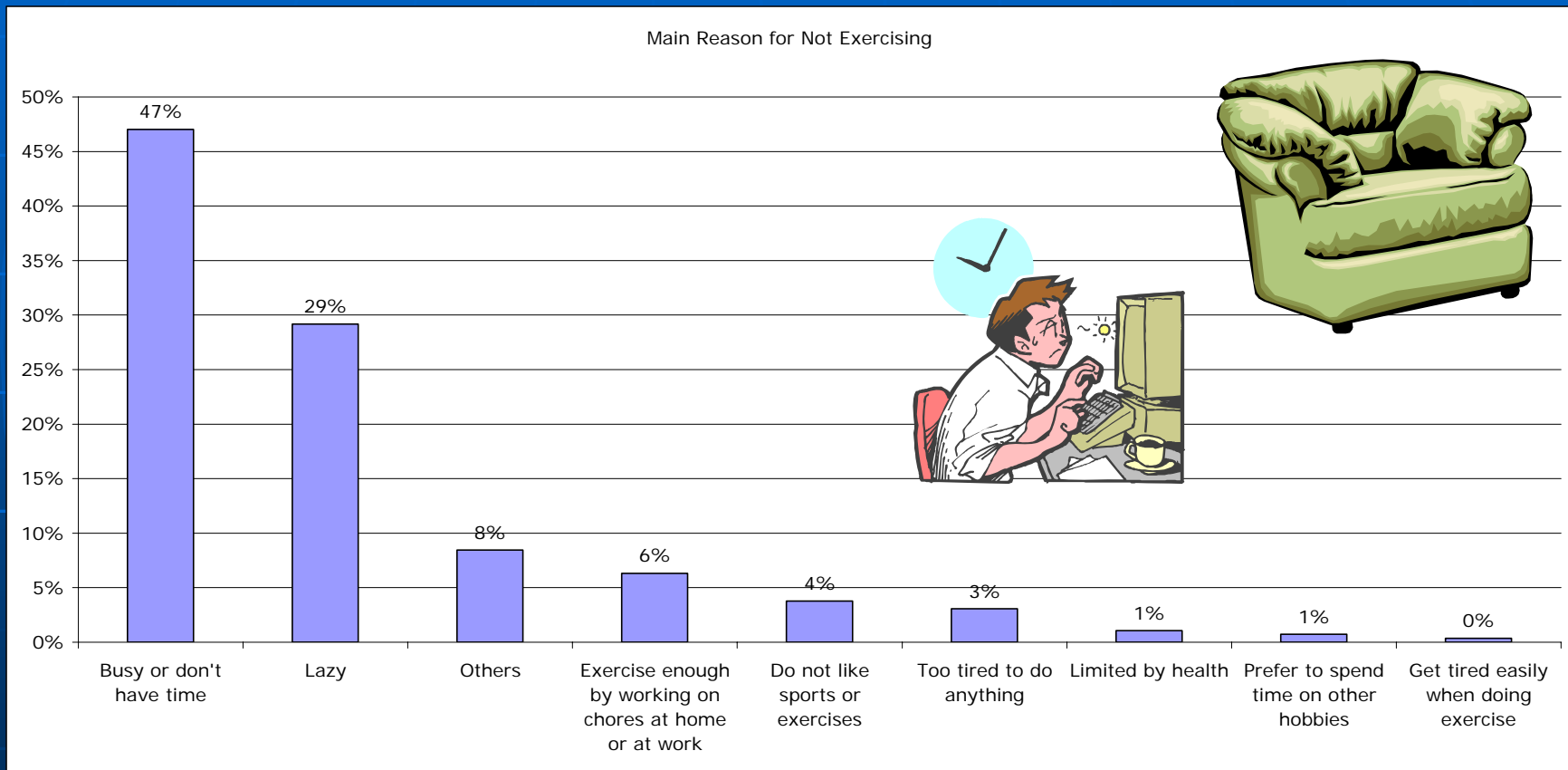
No
52%



Yes
48%

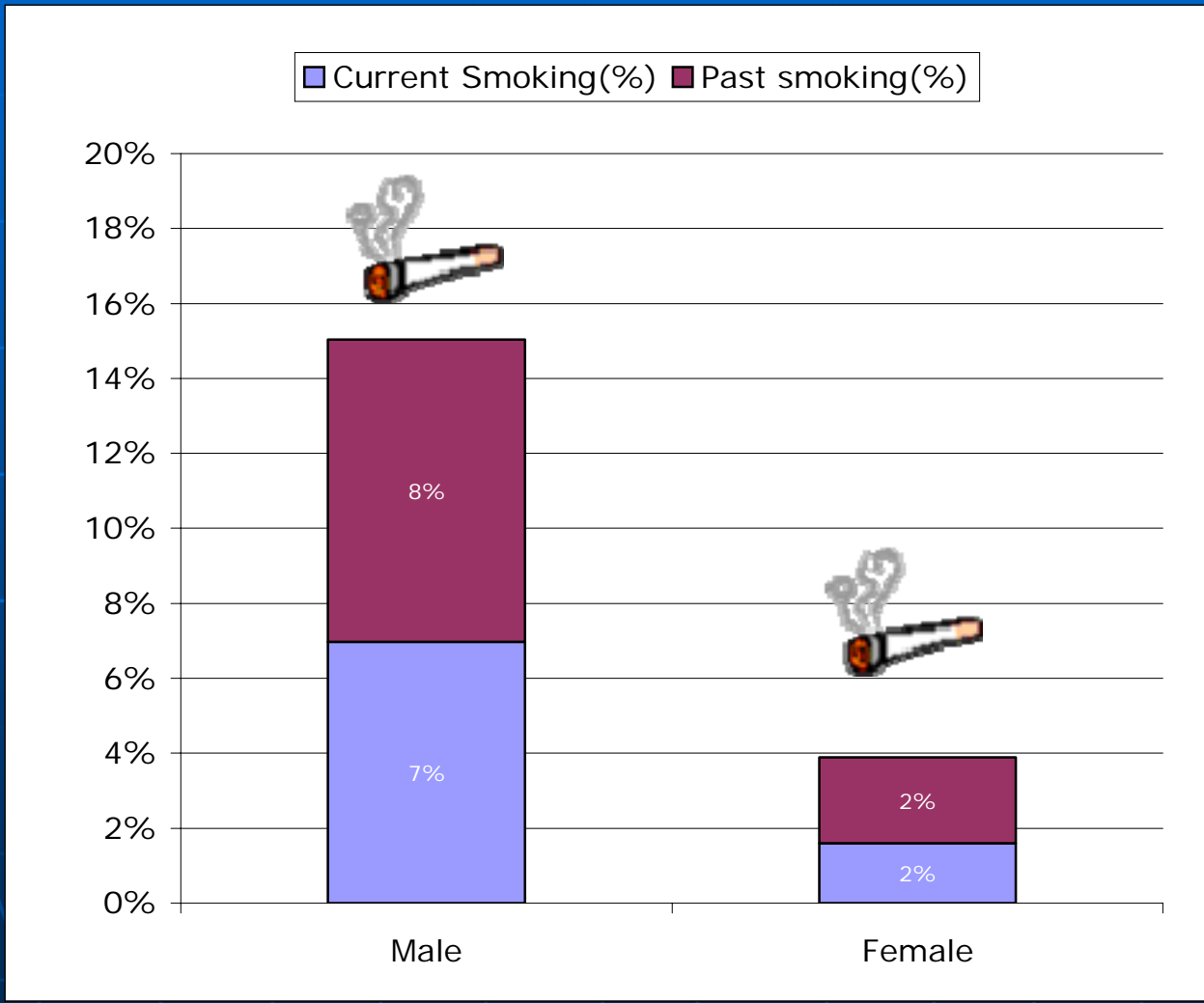


Reasons for not exercising





Smoking



Conclusions

- Poor knowledge regarding signs and symptoms of heart attack and stroke
 - 30% for Chinese-Canadians vs 75% general population according to ON-BP study (CMAJ 2008).
- Lack on knowledge in calling 911 when symptoms of heart attack or stroke develop. 20% for Chinese-Canadians vs 49% general population
- Significant lack of exercise among Chinese

Objectives

- (1) Epidemiology of Stroke among Chinese-Canadians: from office to the hospital studies.
- (2) Survey of Knowledge and Awareness of Stroke & Heart Diseases among Chinese-Canadians.
- (3) Stroke in Chinese-Canadians with Diabetes Mellitus.

ASSESSMENT OF RISK FACTORS IN CEREBROVASCULAR DISEASE AMONG CHINESE-CANADIANS: AN 8 YEAR RETROSPECTIVE CASE-MIX PILOT STUDY

Donald L. Ly(1), Alice Cheng(2), Joseph Y.
Chu(3)

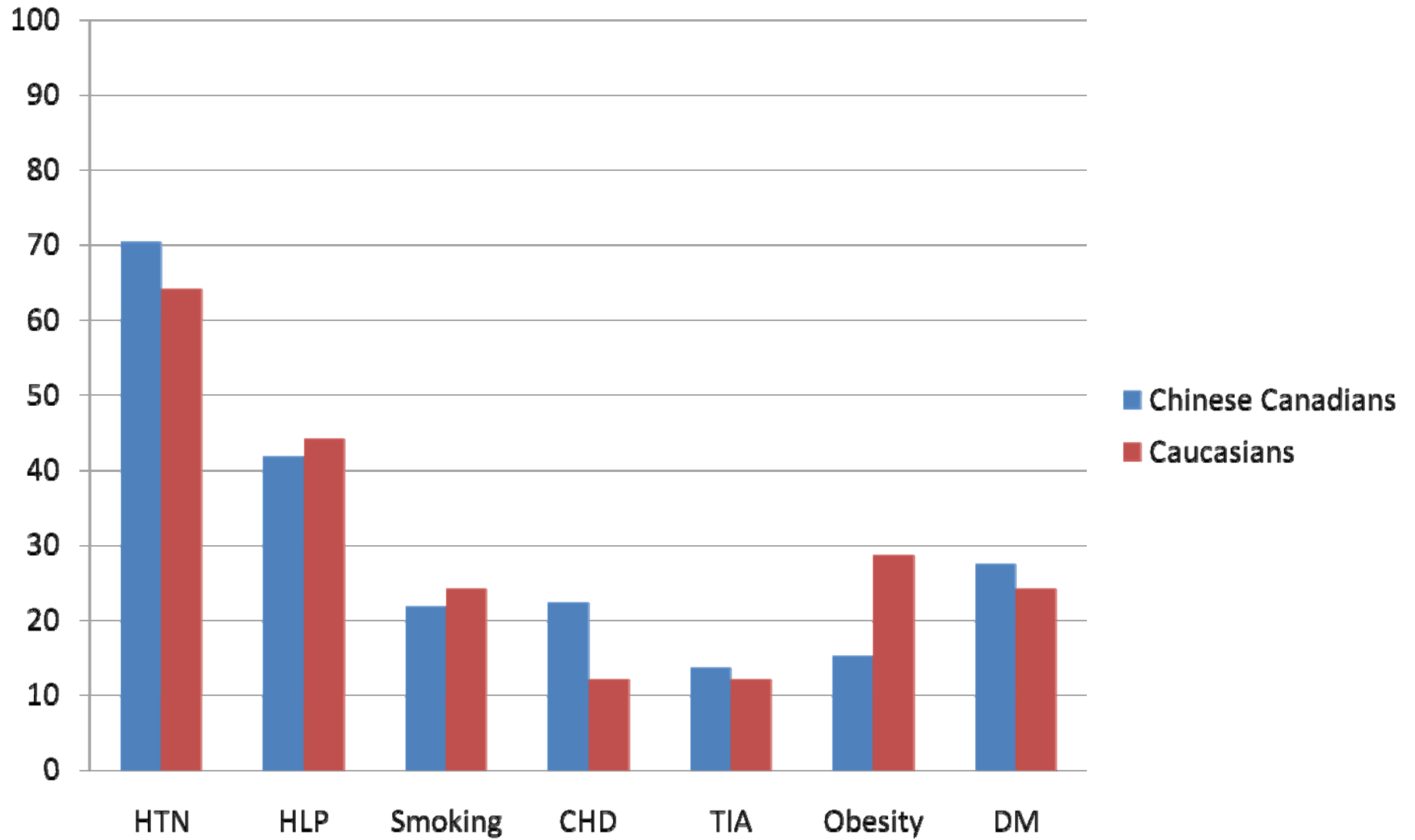
(1) Faculty of Medicine, University of
Toronto, (2) Division of Endocrinology &
Metabolism, Department of Medicine, St.
Michael's Hospital and Credit Valley Hospital,
(3) Division of Neurology, Department of
Medicine, Toronto Western Hospital-
University Health Network and William Osler
Health Centre

- Previous studies have shown that there are racial differences in the pattern of cerebrovascular disease^{1,2}
- This is a **case-mixed retrospective study** attempting to elucidate the frequency of risk factors among Chinese-Canadians with stroke compared with non-Chinese-Canadians especially focusing on **diabetes-related parameters**

Results

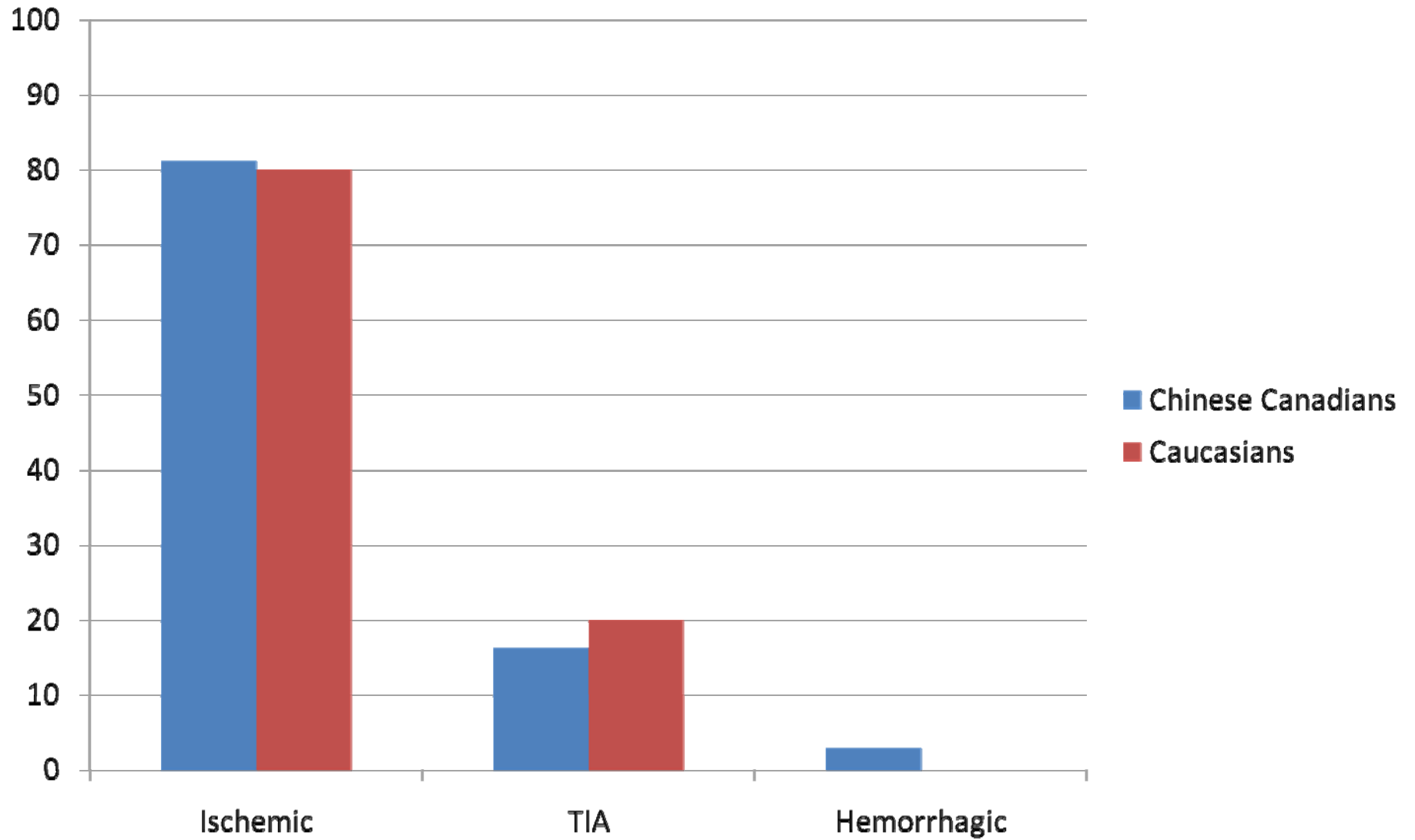
- **37 Chinese-Canadians** with a stroke diagnosis were compared to **25** age- and sex-matched **non-Chinese-Canadians** with a similar diagnosis
- The mean age of onset was **64 years**
- **Hypertension** and **hyperlipidemia** were the two most common risk factors among both the Chinese and non-Chinese cohorts
- **Diabetes** was present in **27%** of the cases for Chinese-Canadians and **24%** for non-Chinese-Canadians
- The frequency of other risk factors, type, location, side and etiology of the stroke were also similar between the cohorts.

Risk factors



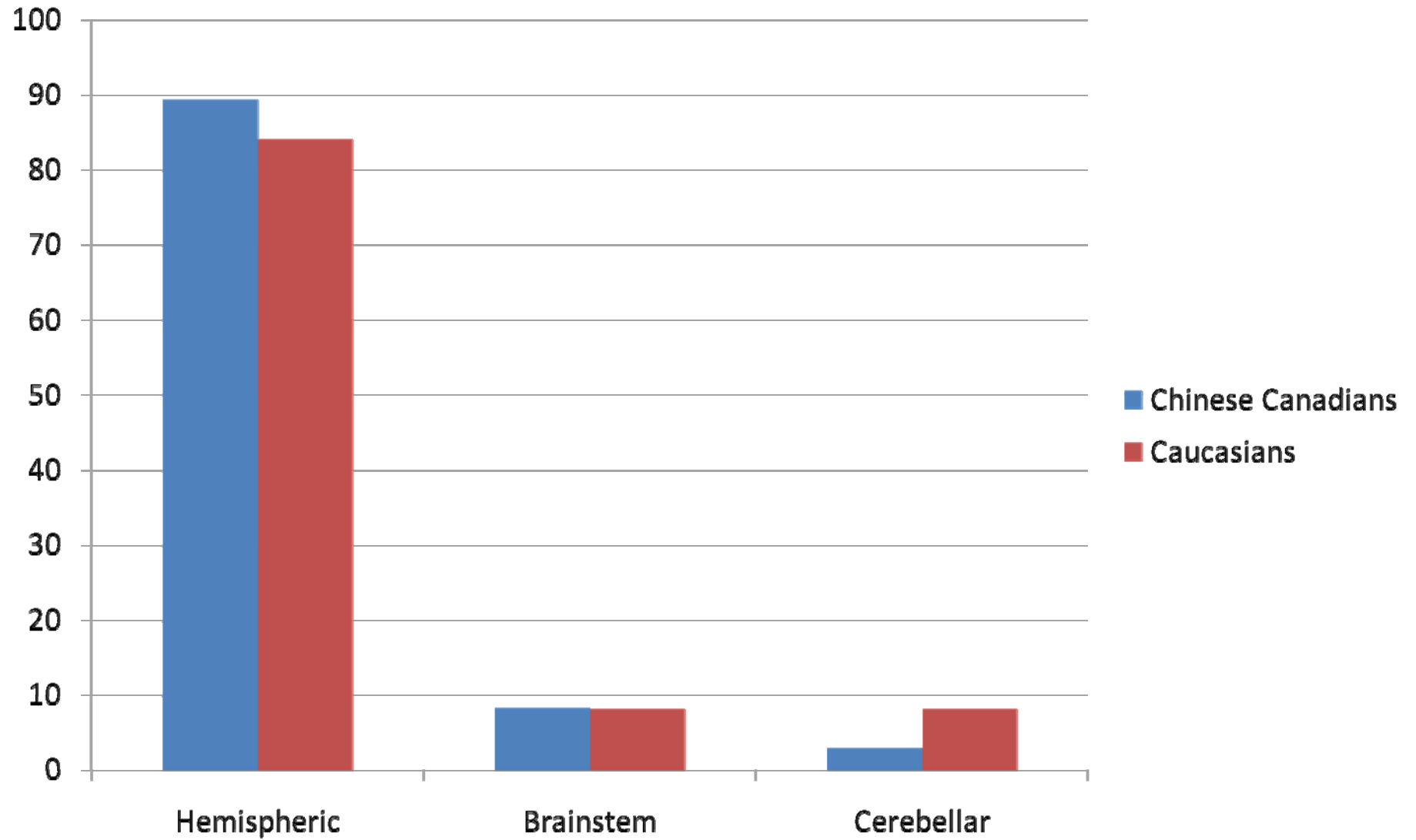
HTN=hypertension, HLP=hyperlipidemia, TIA=transient ischemic attack, DM=diabetes mellitus

Type of stroke

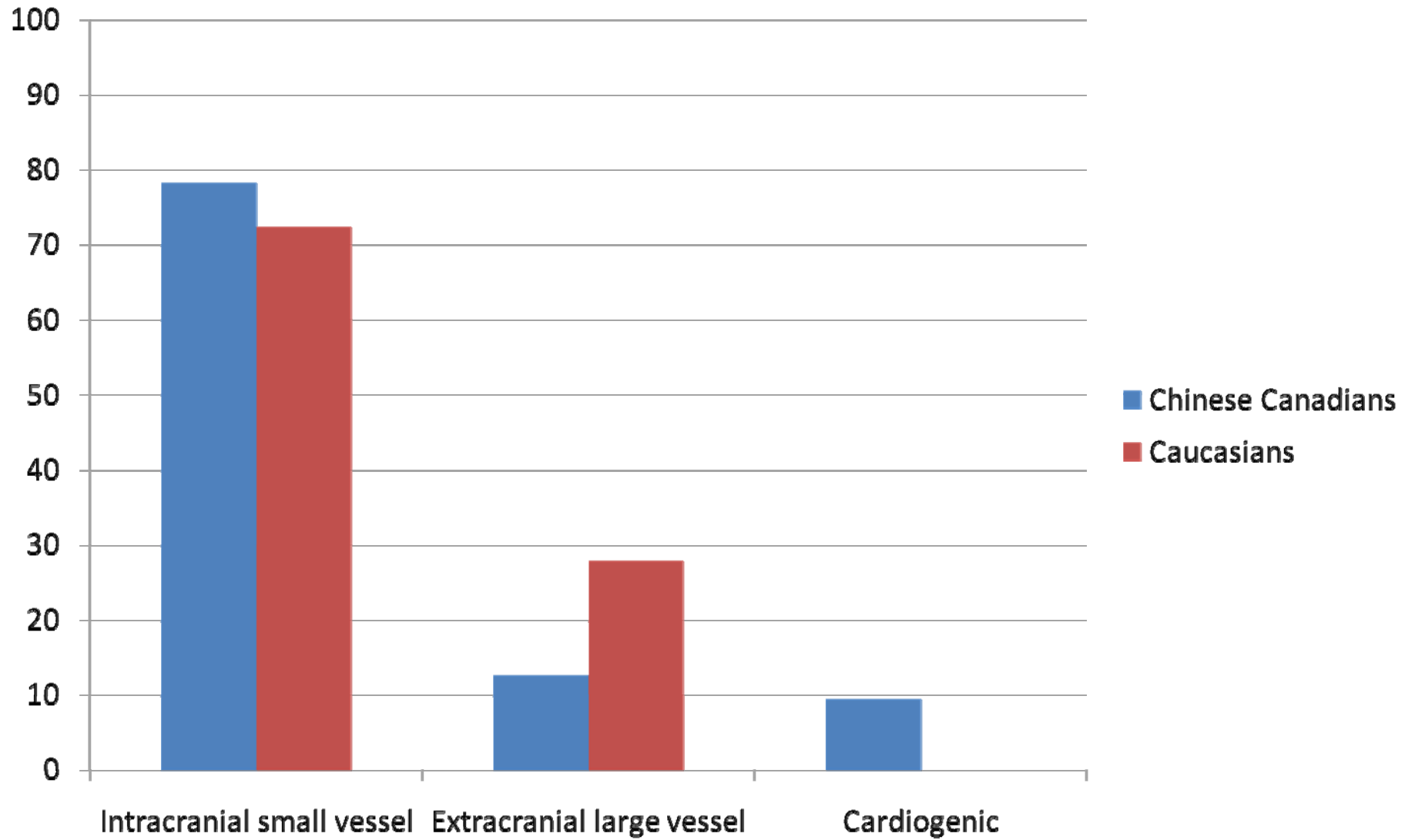


TIA=transient ischemic attack

Location of the stroke



Etiology of the stroke



Summary

- This small retrospective pilot study examining the frequency of risk factors among Chinese-Canadians with stroke compared with non-Chinese-Canadians with stroke is suggestive that the frequency is similar among the two groups. The findings are similar to a previous study³

Conclusions (1)

- There are unique stroke characteristics among Chinese-Canadians: Higher frequency of hypertension, hyperlipidemia and ? diabetes which may be contributing to more **intracranial small vessel disease**.
- **Uncontrolled hypertension** may be a significant risk factor in the contribution of **higher frequency of intracranial hemorrhage**.

Conclusions (2)

- A comprehensive telephone survey among Canadian Chinese regarding the awareness of stroke & heart disease shows only 30% are aware of stroke symptoms and only 20% will call 911 if stroke symptoms develops.
- Physicians and community organizations should help in the development of future health promotion initiatives targeted specifically to the Chinese population to address particular knowledge gaps and misconceptions in heart disease and stroke.

CONCLUSIONS (3)

- Future long-term, population-based study of the stroke risk factors of Chinese-Canadians would be an important endeavor to prevent stroke occurrence in this population. **(STROKE REGISTRY)**
- Studies of stroke pattern of successive generations of Chinese-Canadians, similar to the Honolulu Heart Study would be essential in the understanding of how **genetic and the environment influence stroke development.**

