Thai Epidemiologic Stroke (TES) Study


on behalf of The TES Study Collaborative Research Group**

*Prasat Neurological Institute, Department of Medical Services, Ministry of Public Health

Bangkok, THAILAND

** TES Study Collaborative Research Group composed of Prasat Neurological Institute, Thai Stroke Society, The Neurologic Society of Thailand, Muang Chachoengsao Hospital, Chachoengsao province, San Kamphaeng Hospital, Chiang Mai province, Khon Kaen Hospital, Khon Kaen province, Provincial Public Health office of Nakhon Si Thammarat
Stroke is still a leading cause of death and disability
in Thailand

- According to The WHO Stroke Surveillance System, Stroke is among the five most important causes of disability in both developing and developed countries
- Stroke is to a large extent preventable, but prevention relies on good epidemiologic data
- In Thailand, stroke is still a leading cause of death and disability
- Good Epidemiologic data regarding stroke in Thailand is limited

Thai Epidemiologic Stroke (TES) Study,
The first large community based cohort study regarding stroke in Thailand

Objective
- To determine the risk factors of stroke in Thailand
- To determine the associations between various risk/ potential factors of the stroke

Designs & Methods
- Community based cohort study
- Total number of subject was 20,348 persons
- From five communities of Thailand
- Stroke and cause of death are the major interesting events

Time table

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Study population

- General population aged 45 – 80 years
- Living in study community region
  - Bangkok
  - Chachoengsao
  - Chiang Mai
  - Khon Kaen
  - Nakhon Si Thammarat
- Intention to cooperate well with long term follow up part of the study
Baseline survey of health status

- Survey was performed at local community health center
- Number of subjects is about 80 persons/day
- Number of working staff is about 30 persons/day
- Health status survey data:
  - Blood pressure measurement
  - Anthropometry
    - Body weight
    - Height
    - Hip & waist circumference
  - Blood collection
  - Interview

  The questionnaire contained questions that elicited the following items:

  1. Previous stroke
  2. Socioeconomic status
  3. Medical history
  4. Family history
  5. Smoking status
  6. Alcohol consumption
  7. Physical activity
  8. Snoring status
  9. Contraceptive pills
  10. Hormonal replacement therapy
  11. Mental stress
  12. Mood depression
  13. Food frequency
- Sequence of data collection& stations at the survey site

- Registration
- Checking for informed consent

BP measurement → Anthropometry

Physical examination by a neurologist

Yes
Suspected stroke?

No
Data checking

STOP

- Data quality control

Before survey
- Standard well designed case record form
- Standard manual of operation
- Standard Operating procedure
- Only well trained staff allowed to participate with the study

During survey
- At each survey, Quality Control Team (5 auditors) visit to the survey sites and observe the measurers, recording the compliance with the protocol in 8 standard performance checklist forms (48 items)
- Check and correct all case record forms for completeness and consistency of data at the survey sites
- Each survey, measurement device was calibrated before and after use
- Inform and correct the missing points to field working staff at the end of each survey
- Plasma/ serum was centrifuged at survey site, and shipped to central CDC certified laboratory at Faculty of Medicine, Ramathibodi Hospital, Mahidol university and was analyzed on the day of sample collection
- A random sample of specimens (5%) was selected for split into two sample, for precision analysis

(5)
After survey

- Statistical analysis of data quality control record form
- Digit preference analysis (hip/waist circumference, height, weight, blood pressure)
- Bland-Atlman plot analysis (blood sugar, cholesterol, triglyceride, HDL, LDL level)

**Case ascertainment**

- *Multiple overlapping sources are used to identify the interesting events*
- *We have a plan to follow all subject at least until year 2012*

- Interesting events include stroke (WHO criteria) and cause of death
  - A system include:
    1. Self-report by subject/ family
    2. Report by health personnel
    3. Contact by letter/ telephone/ home visit at each year
    4. Discharged summary from hospital in the study area (ICD 160- 169, I63, I67.8, I61, I60, and death)
    5. Death certificate from National Data Base system
    6. Each medical records/ information were verified by 2-3 neurologists

**Study Progress**

Complete case enrollment by 26th December, 2006

Cumulative number of participants in TES Study (26 Dec 2006)

![Graph showing cumulative number of participants from July 2004 to November 2006](image)

- Jul, 2004
- Sep, 2004
- Nov, 2004
- Jan, 2005
- Mar, 2005
- May, 2005
- Jul, 2005
- Sep, 2005
- Nov, 2005
- Jan, 2006
- Mar, 2006
- May, 2006
- Jul, 2006
- Sep, 2006
- Nov, 2006

20,348
Representation of Thailand population

Proportion of study sample compared with Thai population

Conclusions

- TES Study is the first large cohort study regarding stroke in Thailand
- Quality of data is in acceptable range
- TES Study will provide a lot of valuable data in the near future.

Contact us

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