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An epidemiological study of epilepsy in Hong Kong SAR, China

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Summary

Background: Several specialist clinic-based epidemiology studies suggested low prevalence in Hong Kong Special Administrative Region (HKSAR) of China. Population-based epidemiological data for epilepsy is not available. We performed the first population-based epidemiological survey of epilepsy in this locality.
Method: We conducted a territory-wide survey. We randomly selected 9547 households from fixed-line telephone directory. We successfully surveyed 17,783 persons of 5178 households by telephone interview. All positive respondents 685 (3.85%) were invited for clinical validation. 127 subjects were validated by board-certified neurologists.
Results: Seizure disorders were confirmed in 28 subjects. The crude prevalence of active epilepsy and seizure disorder were estimated to be 3.94/1000 (95% confidence interval (CI): 2.10–6.74/1000) and 8.49/1000 (95% CI: 5.64–12.27/1000), respectively.
Conclusions: The prevalence of epilepsy in HKSAR is more common than previously thought. The data retrieved is useful for planning and allocation of health resources for patients with seizure disorders.

Introduction

Epilepsy is a common neurological disease in the developed world. It was estimated that 45–100 million people have active epilepsy worldwide.[1] The reported point prevalence for active epilepsy

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in developing and developed countries ranged from 4 to 7 per 1000,[2] with limited data available for Chinese populations.[3–5] In this locality, several clinic-based studies were conducted with estimated prevalence figures from 0.5 to 1.5 per 1000[6–9] which are likely to be a gross under-estimation.[10]

Hong Kong Special Administrative Region (HKSAR) is a metropolitan city with a population of over 6.7 million (97% ethnical Chinese). Despite its affluence in economical terms (with gross national income per capita ranked 15th in the World in 2002),[11] population-based health census data for seizure disorders are not available.

A door-to-door approach is a standard community-based epidemiological survey method.[5,12,13] However, because of the existing socioeconomic architecture and cultural reasons, it may be impractical in this locality. Alternative method, such as telephone screening followed by clinical validation, has been tried with success.[14,15] Using a similar approach, we conducted a population-based epidemiological study for seizure disorders in Hong Kong.

Methods and materials

A questionnaire with 7 screening questions was designed specifically for the study. An English translated version is reproduced in Table 1. The questionnaire was validated with a cohort of 100 patients with seizure disorders and 100 normal controls.

The actual study was conducted in two stages, namely, a telephone screening phase followed by clinical validation. In addition to the 7 screening questions, demographic data (age, sex, education level, marital status, occupation and location of residence address) was also obtained at the time of telephone interview (Fig. 1). The study was approved by the ethics committee of Institutional

Table 1 Age and sex distribution of positive respondents

Questions	Age group								Sex		
	0–14	15–24	25–34	35–44	45–54	55–64	>= 65	Total	Male	Female	Total
Q1											
+ve	26	50	34	47	55	49	96	357	166	188	354
%	0.95	1.54	1.39	1.64	1.89	3.03	4.95	2.01	1.92	2.11	2.02
Q2											
+ve	16	21	14	25	30	22	71	199	88	109	197
%	0.58	0.65	0.57	0.87	1.03	1.36	3.66	1.12	1.02	1.22	1.12
Q3											
+ve	10	24	15	14	26	21	64	174	75	98	173
%	0.36	0.74	0.61	0.49	0.90	1.30	3.30	0.98	0.87	1.10	0.99
Q4											
+ve	9	22	9	10	16	11	32	109	52	54	106
%	0.33	0.68	0.37	0.35	0.55	0.68	1.65	0.61	0.60	0.61	0.60
Q5											
+ve	44	50	52	69	69	78	142	504	247	252	499
%	1.60	1.54	2.12	2.40	2.38	4.82	7.32	2.83	2.86	2.83	2.84
Q6											
+ve	72	89	50	22	5	7	9	254	135	118	253
%	2.62	2.74	2.04	0.77	0.17	0.43	0.46	1.43	1.56	1.32	1.44
Q7											
+ve	5	15	10	6	2	7	3	48	27	21	48
%	0.18	0.46	0.41	0.21	0.07	0.43	0.15	0.27	0.31	0.24	0.27

Questions: sensitivity and specificity for seizure disorder — (1) have you or your family members suffered from transient lapses of consciousness or loss of consciousness? (Sensitivity: 54.8%, specificity: 94.9%); (2) have you or your family members ever experienced episodes of sudden involuntary jerky movement affecting limbs, faces or head regions in the day time? (Sensitivity: 19.4%, specificity: 96.0%); (3) have you or your family members experienced sudden drop attacks with tongue biting and/or urinary incontinence? (Sensitivity: 13.3%, specificity: 97.4%); (4) have you or your family members experienced lapse of consciousness with loss of contact with surrounding and staring, not responding to others' call? (Sensitivity: 6.9%, specificity: 97.8%); (5) have you or your family members undergone electroencephalography examination? (Sensitivity: 37.5%, specificity: 93.7%); (6) have you or your family members experienced febrile convulsion before age of 5, i.e., convulsion associated with febrile illness? (sensitivity: 48.6%, specificity: 96.0%); (7) have you or your family members ever been diagnosed to have epilepsy or seizure disorders by doctors? (Sensitivity: 25.0%, specificity: 99.2%).