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TRAINING MEDICAL STUDENTS TO IMPROVE THE MANAGEMENT OF PEOPLE WITH EPILEPSY

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ABSTRACT - *Purpose:* To evaluate the knowledge, attitude and perception of medical students prior to and after a training course about epilepsy. *Methods:* We used a KAP questionnaire with sixty-one questions which assesses knowledge, attitude and practice of epilepsy. Questionnaires were completed by 185 medical students, before and after epilepsy training. We compared the answers to see whether the lecture had changed the knowledge, attitude and practice in epilepsy. *Results:* One hundred and six students completed the questionnaire before an eight hour course on epilepsy and 79 students completed the questionnaire one year after the course. Comparison of the knowledge scores prior to (mean=53.9, standard deviation=11.4) and after the course (mean=63.8, standard deviation=11.9) showed that students had improved knowledge after the course (t-test=5.6, p<0.001). *Discussion:* Training course on epilepsy for medical students can promote improvement in the knowledge, attitudes and perception regarding epilepsy, which is maintained one year later. These results highlight the importance of continuous educational programs within the Medical Curriculum.

KEY WORDS: epilepsy, educational courses, training, education.

Capacitação de estudantes de medicina para o atendimento de pacientes com epilepsia

RESUMO - *Objetivo:* Avaliar conhecimentos, atitudes e percepção sobre epilepsia em estudantes de medicina antes e depois de curso de capacitação. *Método:* Foi utilizado o questionário KAP da Campanha Global "Epilepsia fora das sombras", liderada pela OMS, ILAE e IBE. Este questionário avalia conhecimento, atitude e percepção sobre epilepsia em 61 questões. Foi aplicado este questionário em 185 estudantes de medicina, antes e depois de cursos de capacitação sobre epilepsia. As questões foram comparadas para analisar as mudanças obtidas com o treinamento. *Resultados:* Cento e seis estudantes de medicina responderam ao questionário antes do curso de capacitação e 79 estudantes responderam após um ano do curso. A comparação feita a respeito do conhecimento com estes estudantes mostrou que os mesmos melhoram seu conhecimento com os cursos (pré-teste: nota média=53,9; DP=11,4 vs. pós-teste: nota média=63,8; DP=11,9; t-test=5,6; p<0,001). *Discussão:* O curso de capacitação promove melhoras no conhecimento, atitude e percepção sobre epilepsia, mesmo após um ano. Estes resultados salientam a importância de programas de educação continuada dentro do currículo médico.

PALAVRAS-CHAVE: epilepsia, cursos de capacitação, treinamento, educação.

Epilepsy is the most common and serious neurological condition all over the world[1-4]. Based on our epidemiological survey[5] it is estimated that about one million people in Brazil have active epilepsy, of whom approximately 40% do not receive adequate treatment[5]. Consequently, epilepsy is considered a public health problem, especially in resource-poor countries.

Studies[1-3] have shown that some health professions lack sufficient knowledge to deal with epilepsy, which may result in a high treatment gap. To improve this situation, we suggest that better education of health professionals can be instituted, especially at the undergraduate level of medicine.

This study, part of phase II of the National Demonstration Project on Epilepsy in Brazil, part of the WHO/ILAE/IBE Global Campaign Against Epilepsy, executed by ASPE, Assistência à Saúde de Pacientes

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com Epilepsia[6], aims to evaluate the knowledge, attitude and perceptions of medical students prior to and after an epilepsy training course.

METHOD

Subjects – Students of the 5th and 6th years of the Medicine Course of UNICAMP, Campinas, Brazil.

Instrument – The KAP Questionnaire *(Knowledge, Attitude and Perception)* of the Global Campaign "Epilepsy out of the Shadows", from WHO, ILAE and IBE[6]. This questionnaire evaluates knowledge, attitude and perceptions with 61 closed questions.

Procedure – A pre-test of KAP of epilepsy was set for students in the 5th year. After this first evaluation, we delivered a course, of eight hours duration, highlighting information on the management of people of epilepsy; this included the nature of epilepsy, epilepsy diagnosis and treatment, epilepsy in special situations (women, older people, children), myths and beliefs and psycho-social aspects.

We delivered twelve courses during 2003, as a part of the discipline of Community and Preventive Medicine ("Social Medicine"), with approximately nine students in each course. The post-test was set at the end of the 6th undergraduate year to evaluate any changes since the intervention (one year later).

Each student received a booklet entitled "Epilepsy: a treatable condition", a guideline for AED prescription and a folder containing information on epilepsy treatment and diagnosis. Each question in the knowledge section of the questionnaire was given a score for the correct answer, and the final grade was based on the total score achieved, as a percentage between zero and 100 (see appendix), so that we could compare the performance prior to and after the training. We did not identified the respondents, thus a non-paired t-test was used to assess significance of the score achieved prior and after the training.

RESULTS

Prior to training, 106 medical students completed the questionnaire (58% women; mean age=23 years old). Seventy-nine students also completed the post-test questionnaire (35% women; mean age=24 years old) one year later.

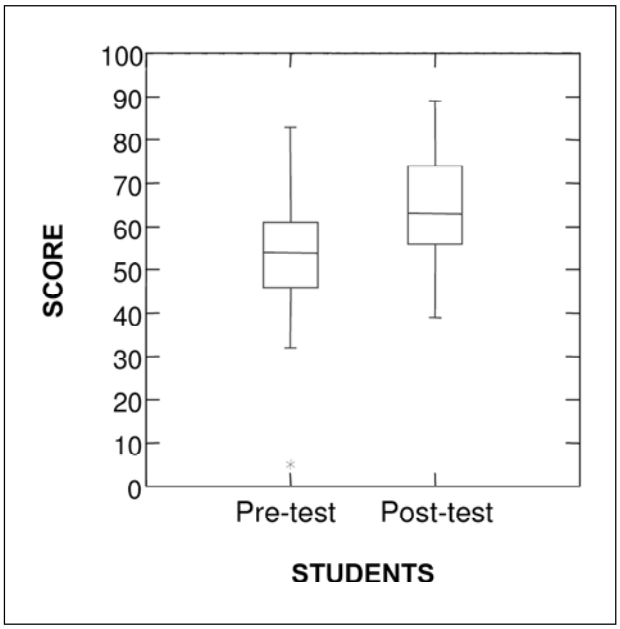

Fig 1. Knowledge test score of students pre and post-training.

The results are presented according the three items of the KAP questionnaire: knowledge, attitudes and perception. The comments and observations of the students are presented at the end of the results.

Comparison of knowledge scores prior to (mean= 53.9, standard deviation=11.4) and after the education (mean=63.8, standard deviation=11.9) showed that students had improved knowledge after the training (t-test=5.6, p<0.001) (Fig 1).

Comments made by the students – Thirty-five (33%) students expressed their opinion about the course, stating that it had significantly improved their knowledge about epilepsy. They therefore felt more

Table 1. Attitudes towards epilepsy.

Questions	Pre-test			Post-test		
Have you ever seen an epileptic seizure?	65.1			83.5		
Do you have any relatives with epilepsy?	23.6			21,5		
Are you able to recognize an epileptic seizure.	41			61		
Beliefs about epilepsy	**Yes**	**No**	**DNK**	**Yes**	**No**	**DNK**
People with epilepsy can exercise.	51.9	23.6	24.5	69.6	22.8	7.6
People with epilepsy can drive cars.	50.0	27.4	22.6	67.1	27.8	5.1
People with epilepsy can have children.	97.2	0	2.8	98.7	0	1.3
People with epilepsy can work in any type of professional activity.	34.9	36.8	28.3	32.9	55.7	11.4

Results presented in percentage: DNK, do not know.

Table 2. Perception regarding epilepsy.

	Pre-test					Post-test				
	TA	A	WO	D	TD	TA	A	WO	D	TD
There should be more openness about epilepsy.	65.9	30.2	3.8	0	0.9	65.8	31.6	2.5	0	0
Epilepsy is sign of weakness.	0	0	0.9	22.7	76.4	1.3	0	1.3	17.7	79.7
People with epilepsy can be treated by primary care centers.	16.9	67.9	8.6	6.6	0	39.2	50.6	6.4	3.8	0
Epilepsy is a treatable condition.	32.1	60.4	4.7	2.8	0	51.9	45.6	2.5	0	0
Excess of alcohol by the parents is a cause for epilepsy.	0	0	51.8	12.3	35.9	0	7.6	35.4	45.6	11.4
People with epilepsy cannot have children.	0	1.9	14.1	58.5	25.5	2.5	0	11.5	39.2	46.8
People with epilepsy can have leadership positions.	47.2	42.4	7.6	0	2.8	60.8	30.4	6.3	2.5	0
Excessive suffering during childhood may lead to epilepsy.	0	0.9	70.7	33.9	35.9	0	0	12.7	39.2	48.1
People with epilepsy can lead normal lives.	45.3	50.0	3.8	0.9	0	55.9	39.2	4.9	0	0
People with epilepsy can contribute to the community.	69.8	26.4	2.9	0	0.9	69.6	27.9	2.5	0	0
People with epilepsy can be better treated in institutions.	4.7	0.9	31.2	30.2	33.0	0	6.3	12.7	39.2	41.8
I feel comfortable and confident to manage epilepsy.	0.9	13.2	22.7	45.3	17.9	2.5	39.2	24.1	29.1	5.1
People with epilepsy are responsible for their condition.	3.8	0.9	13.3	33.0	49.0	2.5	11.4	14	32.9	39.2
People with epilepsy can get married.	71.7	25.5	1.9	0	0.9	73.4	24.0	2.5	0	0
People with epilepsy are more irritable.	0.9	0	10.5	29.2	59.4	1.3	3.8	6.3	35.4	53.2

Results presented in percentage: TA, totally agree; A, agree; WO, without opinion; TD, totally disagree; D, disagree.

confident about dealing with epilepsy, especially in the primary care system. The students expressed a desire for more details and more clinical cases and suggested that the course could be repeated in the 6th undergraduate year.

DISCUSSION

This study describes the course on epilepsy for undergraduate students in a public university in Brazil. We observed that this course can promote better knowledge of epilepsy, as showed by the difference of the score in pre-test and post-test.

In this study, we showed how the reformulation of the undergraduate medical course can contribute to improving the management of epilepsy and to decreasing the related stigma. The students felt more comfortable dealing with epilepsy after completing the course. It may be relevant that the course was taught in the discipline of Community and Preventive Medicine rather than in Neurology. This may have led students to incorporate the concept that the management of epilepsy is not the exclusive domain of the specialist.

In conclusion, this study evaluated the knowledge, attitudes and perception regarding epilepsy, and allowed a comparison of these aspects before and after a specific course on epilepsy. In the pre-test, the results showed that some students already had good information about epilepsy, perhaps because of the regular neurology course, taught in the 4th year. However, we observed a lack of knowledge, especially regarding clinical treatment, epilepsy in women and perceptions. After the course, an improvement was observed in knowledge of epilepsy which was maintained after a year. These results highlight the importance of continuous educational programs to improve the knowledge, attitudes and perception regarding epilepsy within the medical curriculum.

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Appendix. Knowledge test score.

Questions		Correct answer	Score
8a	Do you know patients' rights or limitations related to epilepsy?	Yes	1
8b	Describe the limitations	Driving is not allowed if seizures are not controlled, work at heights, radical sports, work with machineries...	2
9a	Can patients with epilepsy do any type of exercise?	No	1
9b	May patients with epilepsy drive?	No	1
9c	Can patients with epilepsy have children?	Yes	1
9d	Can patients with epilepsy work in any type of professions?	No	1
9e	Explain why you answer NO for questions 9a to 9d		2
12a	Can somnolence be an AED side-effect?	Yes	1
12b	Can anxiety be an AED side-effect?	Yes	1
12c	Can dizziness be an AED side-effect?	Yes	1
12d	Can vomiting be an AED side-effect?	Yes	1
12e	Can headache be an AED side-effect?	Yes	1
12f	Can ataxia be an AED side-effect?	Yes	1
12g	Can impotence be an AED side-effect?	Yes	1
12h	Can increased seizure frequency be an AED side-effect?	Yes	1
12i	Can hirsutism be an AED side-effect?	Yes	1
12j	12a to 12i are correct	Yes	2
13a	Can women with epilepsy have normal deliveries?	Yes	1
13b	Can women with epilepsy breastfeed?	Yes	1
13c	Can women with epilepsy use oral contraceptives?	Yes	1
13d	Can women with epilepsy have tubal ligation?	Yes	1
14a	Should AEDs be interrupted during pregnancy?	No	1
14b	Explain:	The risk benefit between having seizures and fetal malformation weighs more in favor of using the drugs to avoid seizures	2
15a	A re AEDs associated with a high percentage of fetal malformation?	No	1
15b	Explain	The risk of fetal malformation for women taking AEDs is below 10%	2
16	What is the percentage of controlled epilepsy?	80%	2
17	Are convulsions the only type of epilepsy presentation?	No	1
18	Is convulsion synonymous with epilepsy?	No	1
20	What is the age range for febrile convulsion?	0 to 5 years	1
21	Should febrile convulsions always be treated with AEDs?	No	2
22a	Is photosensitivity one of trigger factors associated with epilepsy?	Yes	1
22b	Can sudden interruption of AEDs trigger seizures?	Yes	1
22c	Can sleep deprivation trigger seizures?	Yes	1
22d	Can severe stress trigger seizures?	Yes	1
22e	22a to 22d are correct	Yes	2
23a	Is head trauma a risk factor for epilepsy?	Yes	1
23b	Are meningitis and encephalitis risk factors for epilepsy?	Yes	1
23c	Is tuberculosis a risk factor for epilepsy?	Yes	1
23d	Are obstetric complications risk factors for epilepsy?	Yes	1
23e	Are gastric ulcers a risk factor for epilepsy?	No	1
23f	Is flu a risk factor for epilepsy?	No	1

Appendix. Knowledge test score (continuation).

Questions		Correct answer	Score
23g	Is high fever a risk factor for epilepsy?	No	1
23h	Is malaria a risk factor for epilepsy?	Yes	1
24	Can epilepsy start at any age?	Yes	1
25	What type of AED would you use in a status epilepticus?	Options: Diazepam, Phenytoin	2
26	What would you do during a convulsion?		
26a	Turn patient on his/her side?	Yes	1
26b	Remove anything that could be a danger to the patient?	Yes	1
26c	Pull the patient's tongue?	No	1
26d	Put something in the patient's mouth to avoid tongue biting?	No	1
26e	Give oxygen?	Yes	1
27	When starting AEDs the physician should; (Choose the correct answer)	Start with the minimal dosage in monotherapy	1
28	Which AED is often used in generalized epilepsy?	Option: Valproic acid	2
29	Which AEDs are often used in partial seizures?	Option: Phenobarbital, Carbamazepine	2
30a	Is electroencephalography part of epilepsy investigation?	Yes	1
30b	Is electrocardiography part of epilepsy investigation?	No	0
30c	Is skull xray part of epilepsy investigation?	No	0
30d	Is brain CT part of epilepsy investigation?	Yes	1
30e	Is brain MRI part of epilepsy investigation?	Yes	1
30f	Is brain mapping part of epilepsy investigation?	No	0
30g	Is CSF tap part of epilepsy investigation?	No	0
30h	Is psychiatric investigation part of epilepsy investigation?	No	0
31	EEG should be requested:	To help in the diagnosis of types of epilepsy.	2
32	Neuroimaging should be requested:	Whenever a brain lesion is suspected	2
33	In patients on AEDs:		
33a	Women should not get pregnant, as there is a high risk for the offspring	False	1
33b	Any form of contraceptive can be effective	False	1
33c	The risk of fetal malformation is around 50%	False	1
33d	AEDs should always be reduced during pregnancy	False	1
33e	Women should not breast feed, because of high levels of AED in the maternal milk.	False	1

The scores of each question were added, and the final sum was converted to a percentage ranging from zero to 100.