



## Original Article

# Health education for stroke patient carers: Does it affect functional status improvement in patients after ischemic stroke?



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## ABSTRACT

**Aim:** The aim of the prospective cohort study was to assess the impact of the conducted carer training on functional status improvement in patients after stroke.

**Background:** In recent years, the role of family in unprofessional care provision for patients in their home environment has been emphasized.

**Methods:** The cohort comprised 157 patients after ischemic stroke. The study group consisted of 81 patients and their carers who participated in the education program, and the control group included 76 patients. We used a repeated measures design: the patients' functional status was assessed on the day of hospital discharge and after 3 and 12 months at home.

**Results:** After 12 months the patients' functional status according to Barthel Index and Modified Rankin Scale significantly improved in both groups, but no difference between the groups was noted in the degree of improvement achieved.

**Conclusions:** The carers' participation in the education program did not significantly affect the patients' functional improvement.

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## 1. Introduction

It is estimated that about 60 000 to 70 000 of people in Poland are affected by stroke every year (Ryglewicz, 2007). According to the demographical prognoses reported by Piechowski-Jóźwiak et al., by the year 2025 the number of new cases of stroke will have increased by 37% and 38% in the male and female population, respectively (Piechowski-Jóźwiak, Truelsen, & Kwieciński, 2005).

The difficulties and dysfunctions resulting from brain damage entail long-term disorders of physical and mental balance, so that about half of the patients depend on carers (Jaracz & Kozubski, 2006). In Poland, care is most often provided by the patient's family (Grabowska – Fudala & Jaracz, 2006). The ability to cope with the difficulties by the person providing care for the patient at his/her home depends on numerous factors, including the family members' caring potential, emotional ties with the patient and other people's support. Despite the recognized value of education programs,

multiple care centers have not implemented such measures so far, and the carers often think they are undertrained, insufficiently informed or dissatisfied with the support they provide after the patient's discharge from the hospital (Simon & Kendrick, 2002).

An adequate amount of knowledge of the condition is essential for effective cooperation between the patients and their families. It is particularly important when the activities performed by the patient require their effort and consistency in changing nutritional habits, reducing body mass, doing regular physical exercise or giving up smoking. Numerous studies have shown that the effectiveness of educational activities is relatively limited, and it is even more difficult to make the patients use their acquired knowledge in everyday practice (Kubica, Koziński, & Sukiennik, 2007; Pająk et al., 2010; Roderick, Brennan, & Meade, 1995; Tomiak & Betiuk-Kwiatkowska, 2008). The commonly implemented education programs usually provide the trainees with necessary knowledge, but they do not develop adequate motivation to use this knowledge in practice. Therefore, effective health education should have a positive impact on the patients' motivation by developing their skills of stress coping in chronic illness and leading to mental and functional status improvement (Taton, 2004; Tatoń, Czech, & Bernas, 2006). However, when health education is offered to stroke patient carers on a voluntary basis, it can be expected that the participants are already highly motivated.

There are many factors that affect the functional status improvement in stroke patients (e.g. pathophysiology, comorbidity, carers'

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performance, rehabilitation, family and social support), but in this study we focused on the effect of health education of the carers.

### 1.1. Aim of the study

The main aim of this prospective cohort study was to assess the effect of a voluntary health education program for carers on functional status improvement in patients after ischemic stroke during 12-month observations in comparison with a control group that did not participate in the program. Additionally, to investigate the long-term effectiveness of the implemented education program, we used a repeated measures design. Participants' knowledge about stroke was assessed 3 and 12 months after completion of the program and compared with the baseline assessment of their knowledge (on the day of hospital discharge).

## 2. Material and methods

### 2.1. Participants

The study protocol was implemented at the Department of Neurology and Stroke Care at the Provincial Specialist Hospital in Slupsk from 2009 to 2011. The study was carried out in a cohort composed of 157 patients after stroke and their carers. Consecutively admitted patients with stroke were invited to participate in the study. The exclusion criteria were: (1) documented disability in performing activities of daily living as a consequence of psychosomatic conditions and (2) information that the family would not provide care for the patient after hospital discharge.

During the hospitalization, the education program for 143 patients who gave their consent to participate in the study was implemented. After completion of the education program we started recruitment to the control group. We did not start the recruitment earlier because in our opinion it would be unethical to offer the education program to selected patients only. All the consecutively discharged patients and their families were offered participation in the study according to the same inclusion and exclusion criteria. In the control group, consent was obtained from 100 patients and their families. During the protocol implementation, the number of patients in each group was reduced due to deaths or withdrawal from participation in the

ongoing research. Some patients did not live at the same address after 12 months. Subsequent stages of the protocol and the number of patients in each group are presented in Fig. 1. The study was conducted according to the protocol approved by the Bioethics Committee at the District Medical Chamber in Gdansk (No.: KB-128/08).

In the control group, no education program was offered, and the level of knowledge was not tested. Only functional status assessments were made in that group.

### 2.2. Education program

The training was carried out by an experienced nurse and a psychologist employed at the neurology department where the reported study was conducted. The families of stroke patients as well as the patients themselves were invited to participate in the program. From this group, the patients and families meeting the above-mentioned inclusion and exclusion criteria were selected.

The education program comprised two 2-hour meetings and presentation of the proper patient positioning in bed and position-changing techniques. During the meetings the participants were trained in groups of several persons each or participated in individual training (depending on how many carers of stroke patients needed it at the moment). The syllabus comprised the following topics:

- (1) the nature of stroke (mechanism, signs and symptoms, permanent effects, risk factors);
- (2) the rules of secondary prevention, based on the identified risk factors;
- (3) nursing procedures in stroke patients (prevention of complications, management of patients with neurological dysfunctions, basic physiotherapy);
- (4) psychological effects of stroke and patient care principles.

Specially tailored multimedia, brochures and compilations were used in the training. They were designed by the first author (KH). The level of knowledge about stroke was verified in the patients' families and carers using the same set of questions prior to the beginning of the education program, immediately upon completion of the program and 12 months after the patient's hospital discharge.

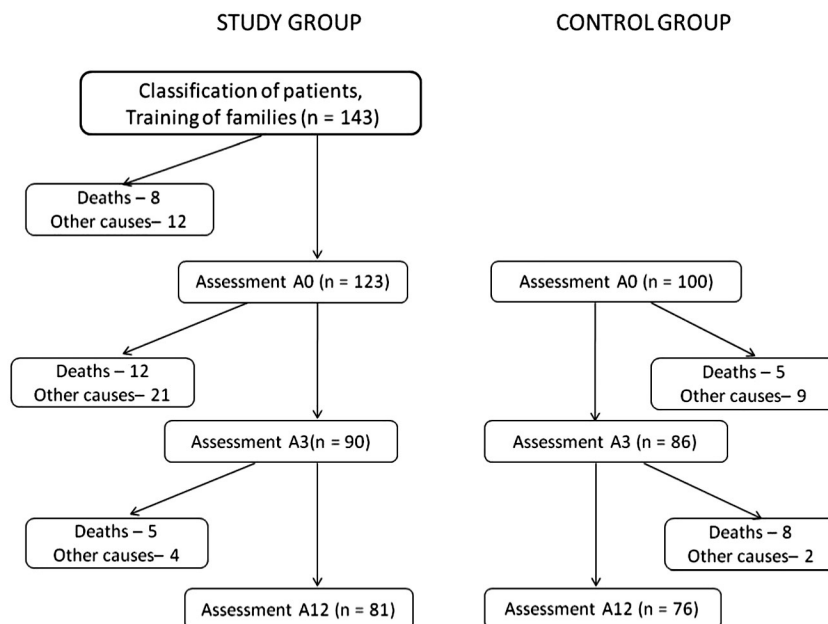


Fig. 1. Numbers of patients in successive stages of the research protocol.

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