



Knowledge and practice concerning swallowing disorders in hemiplegic patients among nurses of Bobo–Dioulasso urban primary health care centers in Burkina Faso



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ABSTRACT

Introduction: The quality of management of swallowing disorders (SD) from admission onwards influences the patients' nutritional status and their prognosis. Neurological diseases are the main causes of SD, affecting one in three patients with hemiplegia (Hp). In Burkina Faso (BF), primary health care center (PHCC) nurses are the first to manage these patients, but there are no data related to their management of SD. The study aimed to assess knowledge and practices regarding SD in Hp among PHCC nurses in Bobo–Dioulasso, a main center for care of Hp in BF.

Methods: This cross-sectional study was performed August 1–September 15 2014. Subjects underwent a standardized survey to determine their knowledge and practices concerning SD in Hp.

Results: Of 125 nurses surveyed (83.3% of the targeted workers), 82.4% had experience of caring for Hp. The role of the central nervous system in cases of Hp and SD was recognized by 56.8% of nurses; 42.3% knew that SD can cause aspiration, and 36.0% were aware of rescue techniques to use when aspiration occurs; 39.2% correctly assessed the impact on nutritional status of SD. Knowledge in this area was better among respondents who recently completed training school. 65.6% and 1.6% respectively knew about the impact of posture and the texture of food on the ability to swallow. Among the 103 nurses with experience of treating Hp, 68.0% considered clinical interview the best way to detect SD, and 30.1% did not give the patient advice in this area. In multivariate analysis, detection of SD was associated with good knowledge of the value of voice disorders (OR = 3.5, 95% CI = 1.4–8.1; $p = 0.005$).

Conclusion: Few nurses had been warned of the connection between Hp and SD, which are classic issues and potential complications. Practices varied, but most were not in accord with what are recognized as good strategies for SD screening and management. In order to improve care of Hp, neurological and nutritional training should be accompanied by specific training in SD, emphasizing screening and simple management.

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1. Introduction

Swallowing disorders (SD) are common among patients with a range of conditions, and dysphagias were identified in 22.6% of adults consulting at primary care centers (PCC) in the United States of America (USA) [1]. In developed countries, fundamental [2] and epidemiologic [3] studies have

been conducted and support measures [4] have been proposed. Developed countries are considered as those with human development index higher than or equal to 0.8. They are countries of OECD (Organization for Economic Co-operation and Development) areas, the countries of Eastern Europe, Central Europe, countries of Commonwealth of Independent States. As the result of this geographical distribution, one often speaks of “western countries” [5,6]. Diseases of the central nervous system are strongly associated with SD [7], and a prevalence of approximately one-third is reported during hemiplegia after cerebrovascular accident

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(CVA) [8–10]. Clinically, stroke patients who receive good-quality care that is initiated early and involves competent caregivers at admission have a better outcome [11,12]. In particular, the role of nurses seems critical [13,14]. With the epidemiological transition [15], diseases of the central nervous system causing SD are increasingly encountered in developing countries [16], but the exploration of these disorders appears insufficient.

In Burkina Faso, a resource-limited country in sub-Saharan Africa, nurses working in PCC (corresponding to Health Centers and Social Promotion, HCSP) comprise the foundation level of the health care system. They are therefore the first to encounter hemiplegic patients, before they progress to higher level care. The second level is the health district, with a medical center and surgical unit. The third and final level is the referral hospital, which may be a regional or university institution. Of the 13 third-level hospitals in Burkina Faso, the Sourou Sanou University Hospital in Bobo-Dioulasso in the Hauts-Bassins region accounted for two consecutive years for most admissions of patients with hemiplegia [17,18]. The two urban health districts in this region (Dafra and Do) had a total of 43 HCSP including 28 urban and suburban, of which 15 were in Bobo-Dioulasso. They cover a population of 787,304 inhabitants living in an area of 4287 km².

In low-income countries of Africa, the availability of medical and paramedical care is insufficient. In 2013, in Burkina Faso, statistics from the Ministry of Health indicated the country has one physician for 21,653 inhabitants, one pharmacist for 83,685 inhabitants, one state graduate nurse for 4965 inhabitants, one nurse (state graduate nurse or patented nurses) for 2957 inhabitants. There was also one midwife for 3643 inhabitants [18]. Nurses are about seven times more likely than physicians, and are present in primary health care centers and are theoretically able to recognize clinically hemiplegia. However, the actual theoretical and practical knowledge of these nurses have not yet been evaluated.

The objective of this study was to assess the knowledge, attitudes, and practices of primary care nurses concerning SD and to investigate the nutritional status of hemiplegic patients in both urban health districts in the Hauts-Bassins region of Burkina Faso.

2. Methods

Permission to collect information was obtained from the Regional Directorate of Health of Hauts-Bassins and the urban health districts of Dafra and Do. A cross-sectional survey was conducted in 150 nurses (85 state graduate nurses (SGN) and 65 patented nurses (PN)) from the district concerned, excluding personal attendants. SGN had received training lasting at least 3 years, and PN trained for at least 2 years. They had started working in the level 1 structure either directly or after working in a higher level of care, and had benefited from various ongoing training courses. To collect data, the standardized questionnaire was administered by face-to-face interview, in the places of primary health care centers. The standardized questionnaire (Table 1) was administered orally between 1 August and 15 September 2014 by a medical student. Questionnaire items exploring the knowledge of nurses were grouped into 10 chapters: the chapter “brain” brought together items confirming basic knowledge regarding the role of the brain in the occurrence of hemiplegia and in the mechanisms of swallowing. The chapters “cough” and “voice” concerned the value of those symptoms in the diagnosis of SD. “Beverages” was about the influence of the characteristics of drinks on swallowing, and “posture” covered postural adaptations. The chapters “pneumonia” and “rescue,” respectively, related to items on the classic consequence of SD—aspiration pneumonia—and any emergency maneuver that can be used if food goes down the wrong way. “Nutrition” covered the impact of SD on nutritional status (weight, body mass index (BMI), arm circumference, and levels of blood proteins). “Hospitalization” concerned knowledge about possible longer hospital stays and increased costs related to the management of SD. The chapter “mortality” covered the impact of SD on death rates.

Attitudes and practices were explored in seven questions addressed only to nurses who had experience of caring for a hemiplegic patient. The questions concerned their judgment of the need to recognize SD in a hemiplegic patient, how to proceed to achieve a diagnosis, whether they had ever suspected or detected SD, whether they had ever needed to place a nasogastric tube (NGT), whether they talked with the patient about the possibility of SD, the type of advice given, and the transmission of information to the next level of care.

Variables were entered using computer software Epi-Info 3.5.1 (CDC Atlanta/USA) and analyzed with STATA 11.1 (Texas/USA). Quantitative variables were expressed as mean \pm standard deviation, and categorical variables as percentages. Student's test was used for comparison of quantitative variables and the chi-squared test and the Fisher exact test for categorical variables. Multivariate step-down analysis was made, intended to explain the ability of nurses to detect SD. The model of multivariate analysis was the logistic regression, using the backward elimination process. First, univariate analysis allowed us to identify each explanatory variable whose odds ratio was a significance level less than 0.25. This threshold makes sure to identify all variables independently related to dependent variable, and particularly those whose significance level is influenced by others in the multivariate model for reasons of effect modification or confusion. Then, they were included in the multivariate model. We gradually removed non-significant variables, and we finally kept only those that are associated with the dependent variable with $p < 0.05$. In all cases, the significance level was 5%.

3. Results

3.1. Socio-professional characteristics

Meetings could not be arranged with 23 of the 150 nurses, and two unusable questionnaires were excluded from the study. A total of 125 nurses responded, comprising 83.3% of the targeted workers. They were aged 38.2 ± 6.5 years; 93 (74.4%) were men, 75 (60.0%) were SGN, and their average length of service was 11.4 ± 7.4 years. Fifty-five nurses (44.0%) had completed training before 2005 (median year at end of study) and 58 (46.4%) had experience in higher level care. Fifty-eight (46.4%) reported having received training on SD, and 103 (82.4%) had experience of caring for a hemiplegic patient.

3.2. Nurses' knowledge about the items and chapters of items (Tables 1 and 2)

One hundred and eight nurses (86.4%) knew that hemiplegia is linked to neurological damage, 112 (89.6%) knew that the brain is involved in the swallowing mechanism, 105 (84.0%) knew that hemiplegia could be accompanied by SD and 98 (78.4%) knew a medical term for difficulty swallowing. In total, 71 (56.8%) nurses correctly completed chapter “brain”; the figure for “pneumonia” was 54 (42.3%), and that for “rescue” 45 (36.0%); 73 (58.4%) and 70 (56.0%), respectively, saw the value of a cough, or a change in voice quality. Twenty-three (18.4%) 91 (72.8%), 49 (39.2%), and 57 (45.0%) nurses knew that thickening beverages, and changing their consistency, taste and temperature may influence a hemiplegic person's ability to swallow it. The chapter “beverages” was completed correctly by just two (1.6%) nurses. The importance of how the patient is seated was recognized by 105 (84.0%) nurses, and that of the posture of the nurse or caregiver helping the patient eat by 83 (66.0%) nurses. The chapter “posture” was completed correctly by 82 (65.6%) nurses. Regarding the impact of SD on nutritional status, 101 (80.8%) nurses knew that there may be an effect on weight, 81 (64.8%) BMI, 72 (57.6%) arm circumference, and 82 (66.4%) blood protein levels. The chapter “nutrition” was completed correctly by 49 (39.2%) nurses. Furthermore, 114 (91.2%) and 115 (92.0%), respectively, knew that the presence of SD could lengthen hospital stay or increase the cost of care. “Hospitalization” was correctly completed

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