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Research Article

Knowledges, Attitudes and Practices of Health Care Workers on Sickle Cell in Togo

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Abstract

Background: In Togo, the prevalence of hemoglobin «S» is 16.1%, with 3 to 5% of major for ms. The objective of this study was to evaluate the knowledge, attitudes and practices of health care workers (HCW) on sickle cell disease.

Patients and Method: This was a cross-sectional study with descriptive and analytical aims th at took place over a period of 5 months among 379 health personnel in Togo. A pre-test questi onnaire was used to collect information on their knowledge, attitudes and practices regarding sickle cell disease.

Results: The participation rate of the HCW was 76.0% (379/499). The profile of HCW (N = 379) was dominated by nurses (25.9%) and midwives (25.3%). Most of the HCW (92.9%) knew the factors that promote sickle cell crises. The main signs suggestive of sickle cell crisis cited by the HCW were pain (88.6%), conjunctivo-palmar pallor (44.6%), jaundice (14.2%) and fever (12.7%). Responses were significantly better in those with a bachelor's degree, the caregivers with less than 10 years of experience and among the physicians. Prescribing the sickle cell diagnostic test in front of signs suggestive of sickle cell disease in a patient (95.0%) was satisfactory. The attitude of advising sickle cell diagnosis to those who wanted to get married was more common among doctors (p = 0.0003) and those with less than 10 years' experience (p = 0.0001). Four out of five (79.9%) HCW had performed personal screening. Forty-seven point eight percent had given at least one medical follow-up to sickle cell children. Doctors and senior health technicians had better practices (p = 0.00005).

Conclusion: The HCW generally had good knowledge on sickle cell disease, nevertheless their attitudes and practices were insufficient. It would therefore be desirable to have a policy of continuous training of health personnel in sickle cell disease, especially in peripheral care.

Keywords: *Sickle Cell Disease; Knowledge; Health Workers; Togo*

Introduction

About 5% of the world's population carry the characteristic genes of hemoglobinopathies, whi ch are mainly those of sickle cell disease and thalassemia. More than 300,000 children with se vere hemoglobinopathies are born each year [1]. In sub-Saharan Africa, the prevalence of hemoglobin "S" is relatively high, up to 30-40% of the population in equatorial African countries [2]. In Togo, the prevalence of hemoglobin "S" is 16.1%, with 3 to 5% of major form s [3-5]. Morbidity is related to acute and chronic complications and their psychosocial and eco nomic impact [6]. Mortality is relatively high, especially in children under five years of age [7]. In Togo, 10% of beds in pediatric wards are occupied by sickle cell patients [8]. In view of the extent of sickle cell disease in Togo, a study was carried out on the knowledge and practices of the population in an urban district of Lomé [9]. HCW play an essential role in the management of sickle cell disease, especially since the health care organization is based on decentralization of care in dispensaries where health care personnel of different grades work. However, no Knowledge, Attitudes and practices (KAP) study has been carried out among these HCW on the subject of sickle cell disease.

Objective of the Study

The objective of this study was to evaluate the knowledge, attitudes and practices of HCW regarding sickle cell disease.

Patients and Methods

Six health districts in Togo were randomly selected from among the 40 in Togo, one district per region. These were the Lomé-Commune N°2 health district, the prefectural health departments of Golf, Est-Mono, Tchaoudjo, Assoli and Tone (Figure 1). This is an analytical cross-sectional study that took place from July to November 2018. The study involved health personnel in the above-mentioned zones taking care of children with sickle cell disease: pediatricians, general practitioners, health technicians (A level + 3 years of general health training), nurses and midwives. Medical students, other trainees, and on-call staff were not included in the study. As we had no previous data on knowledge, attitudes, and practices about sickle cell disease among HCW in Togo, we determined that poor knowledge, attitudes, and practices would be around 20%.: $n \geq (u^2\pi(1-\pi))/\Delta^2$.

Figure 1: *Health map of Togo (source: ADT France Togo).*

: District selected (district by region).

Thus, with a first-species risk α = 5% and a relative precision of 5%, the sample size would be according to the formula: $n \geq \frac{u^2\pi(1-\pi)}{\Delta^2}$

u = 1.96 at the 5% threshold; π = 0.20 the prevalence of insufficient KAP; Δ = 0.05 the precision.

Allowing for 10% incomplete data, we have n ≥ 270. We increased this number to 420 including 70 per district. Data collection was done on a survey form with open-ended questions. The variables studied were sociodemographic data of the HCW (age, sex, profile, level of education, marital status, professional experience), knowledge about sickle cell disease, attitudes and practices about sickle cell disease. Performance levels were assessed as follows: Poor response (0 - 25%), fair response (26 - 50%), good response (51 - 75%) and very good response 76 - 100%). Data entry was done with Epidata v3.1 software and analyzed with Epi-Info2000 v3.5.4 software with statistical tests (K2 test), significance level of p ≤ 0.05. Written consent from the Director of the Medical School at the University of Lomé (Togo) was obtained for the collection of our data.

Confidentiality was ensured and anonymity was guaranteed on the collection forms.

Results

Sociodemographic characteristics

This study included 379 health personnel. The participation rate of the HCW was 76.0% (379/499). Nurses were the most represented (n = 98; 25.9%), followed by midwives (n = 96; 25.3%). The sex ratio (male/female) was 0.86. The average age of the respondents was 35 years +- 7.32. The most represented age group was 30-39 years (n = 226; 59.6%). The Maritime Region and the Lomé Commune health district had respective proportions of participants of 17.7% (n = 67) and 17.4% (n = 66). The respondents had a level higher than a bachelor's degree (n = 277; 73.1%) and a A-level (n = 302; 79.7%). The average work experience of the respondents was 8 years +- 6.3 with 4/5 having less than 10 years of experience (n = 297; 78.4%).

Knowledges of sickle cell disease

The cells affected in sickle cell disease were known to HCW as red blood cells (n = 350; 92.3%) and "sickle-shaped" (n = 326; 86.0%). Responses on the mode of inheritance of the disease (n = 368; 97.1%) and the test for diagnosis, hemoglobin electrophoresis (n = 347; 91.6%) were satisfactory (n = 368; 97.1%). The diagnostic test for sickle cell disease was part of the premarital check-up (n = 342; 90.2%). At least one factor favoring sickle cell crises was cited (n = 352; 92.9%). Cold (n = 337; 88.9%) and physical effort (n = 98; 25.9%) were the most common known triggers. At least one sign suggestive of sickle cell crisis was given (n = 354; 93.4%); pain (n = 335; 88.6%) and pallor (n = 169; 44.6%) were the most reported signs. Half of the respondents cited an essential vaccine to be given to children with sickle cell disease (n = 203; 53.6%), including BCG (n = 108; 28.5%), pentavalent (n = 105; 27.7%) and pneumococcal vaccine (n = 92; 24.4%). The importance of monitoring sickle cell children was known by 78.2% of respondents (n = 296). More than half (n = 236; 62.3%) stated that it was to avoid acute attacks and (n = 130; 34.3%) to avoid chronic complications.

Table 1 shows the levels of knowledge of health professionals about sickle cell disease according to educational level and professional experience.

	Level of education					Seniority (years)				
	A-level		A-level			<10		≥10		
	N = 300	%	N = 79	%	p	N = 297	%	N = 82	%	p
Affected cells	278	92.7	72	91.1	0.6	275	92.6	75	91.5	0.4
Form of the cells	269	89.7	57	72.2	0.00001	264	88.9	62	75.7	0.002
Transmission mode	292	97.3	76	96.2	0.4	288	97.0	80	97.6	0.5
Triggering factors	287	95.7	65	82.3	0.0002	280	94.3	72	87.8	0.04
Common signs	286	95.3	68	86.1	0.003	277	93.3	77	93.9	0.5
Vaccines required	164	54.7	39	49.4	0.2	158	53.2	45	54.9	0.4
Diagnostic test	289	96.3	77	97.5	0.4	286	96.3	80	97.6	0.4

Table 1: *Levels of knowledge of health professionals about sickle cell disease according to level of education, seniority and professional category.*

Responses on the shape of the affected cells in sickle cell disease (p = 0.00001), on the triggers of sickle cell crises (p = 0.0002) and on the most frequent evocative signs (p = 0.003) were significantly better in those with a bachelor's degree. Similarly, caregivers with less than 10 years of experience had better knowledge of the shape of the affected cells (p = 0.002) and of the triggering factors (p = 0.04).

Table 2 presents the knowledge levels of health professionals on sickle cell disease according to professional category.

	Professional category								
	Physician		Medical technicians		Midwives		Nurses		
	N = 33	%	N = 53	%	N = 96	%	N = 197	%	p
Affected cells	31	94.0	50	94.3	87	90.6	182	92.4	0.8
Form of the cells	32	97.0	49	92.5	85	88.5	160	81.2	0.02
Transmission mode	33	100.0	53	100.0	92	95.8	190	96.4	0.3
Triggering factors	32	97.0	49	92.5	92	95.8	179	90.9	0.3
Common signs	33	100.0	49	92.5	94	98.0	178	90.3	0.03
Vaccines required	29	87.9	20	37.7	48	50.0	106	53.8	0.00008
Diagnostic test	33	100.0	53	100.0	94	98.0	186	94.4	0.09

Table 2: *Levels of knowledge of health professionals about sickle cell disease according to professional category.*

The shape of the affected cells (p = 0.02), the suggestive signs (p = 0.03) and the essential vaccines to be administered to sickle cell children (p = 0.00008) were better known by the physicians.

Attitudes

Prescribing the sickle cell diagnostic test in front of signs suggestive of sickle cell disease in a patient (95.0%) was satisfactory; likewise, advising this diagnostic test to those who wanted to marry around them was also satisfactory (92.3%). Advice on avoiding factors that contribute to the occurrence of attacks (62.3%) was given, 42.0% for hydration, 27.0% for long-lasting impregnating nets and 14.8% for infection prevention. When the test revealed sickle cell disease in a patient, 63.3% of respondents said they would manage the patient and 36.7% of respondents would refer the patient. The attitude of advising sickle cell diagnosis to those who wanted to get married was more common among doctors (p = 0.0003) and those with less than 10 years' experience (p = 0.0001).

Practices

Four out of five (79.9%) caregivers had performed personal screening. The majority of respondents treated sickle cell crises with analgesics (72.3%), anti-anemics (58.4%) and 36.9% of anti-inflammatory drugs. Forty-seven point eight percent had given at least one medical follow-up to sickle cell children. Of these, 71.8% stated that the follow-up was mainly clinical, 24.3% that it was quarterly. Doctors and health technicians had better practices in general (p = 0.00005). The HCW with more than 10 years' experience had performed better children follow up (p = 0.01).

Discussion

Knowledge of sickle cell disease

In our series, the majority of the respondents (92.3%) gave red blood cells as the affected cells in sickle cell disease. But 86.0% knew the shape of these cells (sickle). This result is higher than that of Allogo [10] in France among pharmacists (75%).

This could be explained by the fact that doctors, medical assistants, nurses and midwives have received more in-depth training during their initial training and are more in contact with patients. Moreover, sickle cell disease is a hospital disease.

According to 97.1% of the respondents in our study, heredity was the mode of transmission of the disease. These results differ from those found in the Ngouadjeu study [11] in Cameroon among parents of sickle cell patients (50.5%). Health workers, because of their basic training, have a better knowledge of sickle cell disease than the general population.

Most of the respondents (91.6%) had given the Hemoglobin Electrophoresis as the diagnostic test for sickle cell disease. These results are superimposed on those in the study by Kafando [12] in Burkina Faso where 83% had given Hemoglobin Electrophoresis as the diagnostic test for sickle cell disease. In addition, the majority knew that the test for sickle cell disease diagnosis was part of the premarital check-up (90.2%).

Cold was the most cited (88.9%) as a factor favoring sickle cell crises in our study, followed by physical exertion (25.9%), hypoxia (18.7%), dehydration (16.4%), altitude (11.1%) and travel (7.4%). In the study of Zahran [13] in Tunisia, these main factors are described in another order of frequency: dehydration (95%), hypoxia (81%) and physical effort in (64%).

Most of the respondents had given at least one sign evocative of sickle cell crisis (93.4%) and pain (88.6%) was the most evoked sign, followed by conjunctivo - palmar pallor (44.6%), jaundice (14.2%) and fever (12.7%). These results are similar to those of Guedehoussou [10]: pain (78.6%), anemia (61.4%), jaundice (29.5%). However, in the study by Ngouadjeu [11] in Cameroon, 73% of respondents cited pain as the only sign suggestive of the disease.

Half of the staff surveyed did not know the essential vaccines to be administered to children with sickle cell disease (46.4%). This result can be explained by the fact that the respondents had not received any continuing education on sickle cell disease other than that received during their initial training. Follow-up of children with sickle cell disease is of paramount importance in order to avoid or reduce the frequency of attacks and to avoid complications. Two thirds of the respondents (78.2%) were aware of this.

The answers on the shape of the affected cells in sickle cell disease ($p = 0.00001$), on the factors triggering sickle cell crises ($p = 0.0002$) and on the most frequent evocative signs ($p = 0.003$) were significantly better in the bachelor's degree holders. Similarly, caregivers with less than 10 years of experience had better knowledge of the shape of the affected cells ($p = 0.002$) and of the triggering factors ($p = 0.04$). Physicians had higher knowledge than other health professionals related to the training curricula in health science faculties. There was a need to update the knowledge of health care personnel through training or briefings on sickle cell disease.

Attitudes

The majority of respondents requested a sickle cell diagnostic test when they saw signs suggestive of sickle cell disease in a patient (95.0%). Most advised sickle cell diagnostic tests to those who wanted to marry around them (92.3%). This shows that the respondents had very good attitudes towards the disease.

To avoid the occurrence of attacks, the patient must observe certain rules of hygiene such as: the avoidance of factors triggering attacks, regular intake of folic acid, prevention of infections, prevention of nutritional deficiencies and vaccination. These hygienic measures are known by our respondents; more than half (62.3%) advised sickle cell patients to avoid factors that contribute to the occurrence of attacks, 42% advised hydration (drinking a lot of water). Since a better management of the disease starts with prevention and therapeutic education of parents and patients.

The majority of our respondents were at the first level of the health pyramid, so they worked in peripheral care units. The best attitude when the test reveals sickle cell disease in a patient was to give advice on hygiene and to take charge of the patient in case of crisis and then refer the patient to a hospital for better management. Two-thirds (63.3%) of the respondents reported that they did the management. Thirty-six point seven percent (36.7%) of respondents would refer the patient since there is no follow-up of sickle cell patients in

these centers. The significant differences in the level of attitudes ($p < 0.05$) of the staff in favor of doctors and medical technicians and staff with less than 10 years of experience were related to training curricula and the frequency of sickle cell disease in their clinical experience.

Practices

The majority of respondents treated sickle cell crises with analgesics (72.3%). According to Kafando [12] in Burkina Faso, the management of attacks involved anti-inflammatory drugs (41%), analgesics (28%), vasodilators (28%), and hydration (17%). Painful attacks are treated with analgesics combining paracetamol, non-steroidal anti-inflammatory drugs and codeine. Due to chronic anemia, folic acid supplementation. Forty-seven point eight percent (47.8%) of the respondents had given at least one element of follow-up for sickle cell children. Of these, 71.8% stated that the follow-up was essentially clinical. But according to 24.3%, the follow-up was quarterly and based on the monitoring of the vaccination status and the physical and clinical data of the children. This indicates a poor knowledge of the practices of health care personnel in the follow-up of sickle cell disease children. This is linked to the fact that health facilities refer patients to hospitals, hence the better performance of doctors and medical technicians compared to nurses and midwives in the periphery. However, the agents with more than 10 years of professional experience had good practices in the follow-up of sickle cell children.

Conclusion

The health workers generally had good knowledge (71.02%) about sickle cell disease. Attitudes (57.03%) and practices (45.60%) were more mixed. There were better performances among doctors and health technicians, graduates and those with more than 10 years of experience. It would therefore be desirable to have a policy of continuous training of health personnel in sickle cell disease, especially in peripheral care.

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