



ORIGINAL ARTICLE

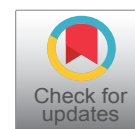
Knowledge, Attitudes and Practices of General Practitioners Regarding Ear Infections in Lomé (Togo)

Winga Foma^{1*}, Essobozou Pegbessou¹, Warou Dolou², Mèhèza Bamassi¹, Bathokedeou Amana¹ and Essohanam Boko¹

¹Department of ENT/Head and Neck Surgery, Université de Lomé, Togo

²Department of ENT/Head and Neck Surgery, Université de Kara, Togo

*Corresponding author: Dr. Winga FOMA, ENT/Head and Neck Surgery, Université de Lomé, 08 BP 80787, Lomé, Togo



Abstract

Objective: This paper describes how Togolese general practitioners deal with ear infections by assessing their level of knowledge about the disease. Furthermore, this research work identifies their attitudes and practices regarding presumptive symptoms of ear infections.

Method: This study was conducted in the municipality of Greater Lomé, the capital of Togo. It was a cross-sectional study with a descriptive aim which took place over a period of six (06) months using a questionnaire filled in the presence of the interviewer. General practitioners (hospital or liberal) or physicians in specialization (residency) but still practicing general medicine or intern (senior year internship) were included, thus representing the different status of our respondents at the time of the study. An arbitrarily defined score allowed us to assess knowledge levels. Statistical analysis was performed with R-Studio software version 3.4.4 and Microsoft Excel 2016.

Results: Out of 400 questionnaires distributed 357 were completed. The main source of information on ear infections among our respondents was the teaching received during university studies (100%). The general level of knowledge about ear infections was good in 182 physicians surveyed (51%), average in 174 (48.7%) and low in 1 (0.3%). The level of knowledge was not significantly related to the current status of the respondent ($p = 0.317$). Normal clinical examination was the main criterion for evaluating the effectiveness of otitis treatment (53.2%). In terms of drug management of ear infections, 96.4% of the physicians surveyed reported the systematic use of an antibiotic. Of the 357 physicians surveyed, 311 (87.1%) had requested training on otitis.

Conclusion: The general level of knowledge about ear infections is good to average among general practitioners

in Lomé. However, while keeping in mind our working conditions, there is a tendency to systematically use antibiotics without distinguishing the form of otitis, which goes against international recommendations.

Keywords

General practitioners, Otitis, Knowledge, Attitudes, Togo

Introduction

Otitis is the acute or chronic inflammation, most often of infectious origin, of the different ducts and cavities of the ear. A distinction is made between otitis externa, otitis media and labyrinthitis. The diagnosis of otitis is clinical and requires rigorous otoscopic examination. The warning signs are: Otagia, pruritus, tinnitus, hearing loss, ear ache, dizziness, and fever. Usually, no additional examination is necessary for the diagnosis; the appearance of the eardrum and the external auditory canal are sufficient to make the diagnosis of otitis externa and acute otitis media (AOM). The complications of ear infections are serious but became less frequent with antibiotic therapy [1,2]. Treatment for otitis of any type is primarily medical, aimed at relieving pain, containing fever and treating the infection.

AOM is the leading cause of antibiotic prescriptions for children in the United States and most other developed countries [3]. Otitis externa is the most common cause of ENT consultations worldwide and accounts for 20 to 35% of emergency consultations [4-

6]. It affects four in a thousand people annually [7] and 10% of the world population has at least one episode of otitis externa during their lifetime [8]. Otitis externa is therefore a concern not only for ENT physicians but also for general practitioners [9]. The Centers for Disease Control and Prevention estimated the number of visits to the general practitioner for otitis media in the United States at more than 20 million in 2007 [10]. In Togo, a study conducted by Boko, et al. revealed that otitis externa was the primary etiology of earache (53%) followed by AOM (25%) in 2009 [11]. Several studies have investigated the management of ear infections in adults and children, but few studies have been published on the care of ear infections by general practitioners in sub-Saharan Africa [12]. The risk of diagnostic errors and the long-term effects of the ear infections such as chronic disease, deafness, disabling tinnitus, and sequelae of facial paralysis in the event of inadequate treatment, sustains this work, whose general objective is to describe the management of these infections by general practitioners. More specifically, the paper seeks to assess their level of knowledge about the disease and to highlight their attitudes and practices when faced with presumptive symptoms of ear infections.

Method

Framework, type and period of study

Our study was carried out in Greater Lomé. It is one of the six health regions of Togo of which it is the capital. It was a descriptive cross-sectional study that took place from February 1 to July 31, 2020, for a period of six (06) months.

Study population and inclusion criteria

The target population of the study was general practitioners living in Togo, with the source population practicing in the municipality of Greater Lomé. Our study included physicians practicing in the municipality of Greater Lomé and being:

- General practitioners (hospital or liberal) or in specialization (residency) but still practicing general medicine or intern (senior year internship);
- Having given their consent to participate in the study.

Physicians who met one of the following conditions were not included in our study:

- Hospital specialists or private ENT specialists;
- In ENT specialization;
- Already specialized in other medical fields.

Data collection and survey process

Data on knowledge, attitudes and practices regarding ear infections were collected by means of a self-administered questionnaire. The average time to complete the self-administered questionnaire was 10

minutes per participant. The questionnaire addressed academic profiles, knowledge, attitudes and practices related to ear infections.

The survey card consisted of open-ended and closed-ended multiple-choice questions. This questionnaire consisted of twenty-nine (29) questions divided as follows:

- Three questions on the characteristics of the respondent: Home faculty, year of graduation from medical school, status (general practitioners or physician in specialization (residency) but still practicing general medicine or intern);
- Three questions on the different sources of knowledge of otitis;
- Thirteen questions on theoretical knowledge of ear infections: Definition, contributing factors, different types, clinical signs, main elements of the clinical examination and main complications, diagnostic strategy, therapeutic possibilities;
- Nine questions on attitudes and practices towards ear infections: Effectiveness of treatment, reason for referral to an ENT, paracentesis, practical advice to avoid ear infections;
- A question about the need for training on ear infections.

To ensure the reliability of the data, the physicians surveyed were asked to complete the self-administered questionnaire in the presence of the interviewer, without recourse to a source of information. The survey was carried out by ourselves and we were assisted by five (5) students in the fourth, fifth and sixth year of medical school.

Sampling

The sample size was calculated using the following formula [13]:

$$n = \frac{t_p^2 \times P(1 - P) \times N}{t_p^2 \times P(1 - P) + (N - 1) \times y^2}$$

With:

- n: sample size;
- N: size of the target population, real or estimated;
- P: expected proportion of a response from the population or actual proportion;
- t_p : sampling confidence interval;
- y: margin of sampling error.

To calculate the number of general practitioners needed, the following assumptions were made:

- The proportion of doctors with knowledge of ear infections would be 75%;
- We considered the number of general

practitioners (300) registered with the National Order of Doctors of Togo according to the updated list of 2019, the number of residents (308) registered in the 2018-2019 academic year and the number of doctoral students in thesis year of three promotions: 2016-2017 (146), 2017-2018 (115), 2018-2019 (257) according to the data from the Medical School of the Université de Lomé; i.e N = 1126;

- The 95% confidence interval gives us $tp = 1.96$ at the 5% threshold;

Therefore, at least 229 physicians had to be included in the study for the results to be meaningful. Our sample size was 357 physicians.

Data processing, management and analysis

The completed self-questionnaires were checked for wholeness and consistency before entry. Data entry was done using Epidata 3.1 software. Statistical analysis was performed with R-Studio version 3.4.4. and Microsoft Excel version 2016.

For knowledge questions:

- When only one proposition was expected, the answer was scored 1 point when it was correct, 0 point when the subject answered "Don't know" or refrained from answering, or when the answer was wrong.
- When more than one proposition was expected, the answer was worth 2 points when all the propositions ticked were right, 1 point when one or two of the propositions ticked were right, 0 point when the subject answered 'Don't know' or if refrained from answering or when all the propositions selected by the respondent were wrong.

Depending on the answers, each respondent had a score between 0 and 19 points. We have arbitrarily defined three levels of knowledge:

- LOW, when the total score obtained was between 0 and 7 points;
- AVERAGE, when the score was 8 to 14 points;
- GOOD, when the subject had scored 15 to 19 points.

A descriptive analysis was performed to highlight the characteristics of the various qualitative and quantitative variables. Percentages were used for the qualitative variables and the means with their standard deviations for the quantitative variables. The statistical tests used were Pearson's Chi-square or Fisher's Chi-square, depending on the conditions of validity, for the qualitative variables. The significance level was set at 0.05. Missing data were not taken into account during data processing.

Ethical aspects

Before carrying out the study, prior agreements were obtained of the participating physicians after they had been informed of the study's progress and objective by means of a letter of request to participate in the survey attached to the questionnaire. The anonymity of the participants was guaranteed. Thus, the last name and first name(s) of the participants were not mentioned on the survey sheet. This study was approved by the Comité de Bioéthique pour la Recherche en Santé (Bioethic Committee for Health Research) of the Ministry of Health in Togo (N° 029/2021/CBRS) and certified by a jury of the Medical School of the Université de Lomé.

Results

Of the 400 questionnaires distributed, 357 could be completed. The participation rate was therefore 89.2%.

Academic profile of respondents and sources of information on ear infections

Of the population studied, 95.2% had been trained at the Medical School of the Université de Lomé; interns represented a proportion of 55.7%. For those who had already defended their dissertation, the years of defense ranged from 1986 to 2020 and the year 2019 predominated with a proportion of 34.2%, followed respectively by the years 2018 (20.9%), 2020 (15.8 %) and 2017 (12.7%).

The main source of information for the respondents was the education received during university studies (100%). Forty-two percent of physicians had heard of ear infections from patients and 30% of physicians had heard of ear infections from radio and television broadcasts. Among the physicians who received a lecture on during their academic career, the teaching subject was ENT in 100% of cases, pediatrics in 34.8% and infectious diseases in 14.8%. [Table 1](#) summarizes the academic profile of the respondents and the sources of information on ear infections.

General knowledge of otitis and diagnostic attitudes of the respondents

The factors favoring ear infections retained by the respondents were immunosuppression (98.6%), diving and swimming (98%), recurrent rhinitis (95.0%), abuse of ear drops (94.4%), being an infant (75.6%), allergy (69.7%), passive smoking (69.2%) and poverty (67.5%).

Among the different types of otitis in adults, otitis externa was the most common form according to 91.9% of respondents. In children, otitis media was the most common form according to 81.8% of respondents.

Among the population studied, 311 physicians (87.1%) knew that an otitis can be acute or chronic compared to 12.6% who said they did not know whether an otitis is always acute or not. For one of the respondents, otitis is still acute.

Table 1: Academic profile of respondents and sources of information on ear infections, Togo, 2020.

	N	number	Percentage
Home faculty	357		
Medical School the Université de Lomé		340	95.2
Foreign Faculties of West Africa [°]		8	2.2
Faculty of Central Africa ^{°°}		1	0.3
Not specified		8	2.2
Current status	357		
Intern		199	55.7
General practitioner		101	28.3
Resident		57	16
Source of information on ear infections	357		
University curriculum (initial training)		357	100
From patients		150	42
Radio and television broadcasts		107	30
Postgraduate education		69	19.3
Medical press		12	3.4
Internship and fairground mission		1	0.3
If academic, in what subject?	357		
ENT		357	100
Pediatrics		122	34.2
Infectious disease		53	14.8
Pulmonology		14	3.9

[°]: Cotonou, Ouagadougou, Conakry, Bamako; ^{°°}: Douala.

Table 2: Diagnostic attitudes of respondents to acute otitis media or otitis externa, Togo, 2020.

	N	number	Percentage
The diagnosis of acute otitis media is clinical	357		
Yes		353	98.9
No		4	1.1
What sign(s) made you diagnose acute otitis media?	353		
Otalgia		335	94.9
Otorrhea		333	94.3
Congestive/inflammatory eardrum		302	85.6
Fever		293	83
Hypoacusis		188	53.3
Normal eardrum		5	1.4
Perforated eardrum		1	0.3
The diagnosis of diffuse otitis externa is clinical	357		
Yes		351	98.3
Don't know		6	1.7
What sign(s) made you diagnose diffuse otitis externa?	351		
Otalgia		349	99.4
Inflammatory external auditory canal		249	70.9
Normal eardrum		201	57.3
Fever		45	12.8
Otorrhea		5	1.4
Ear pruritus		1	0.3

Symptoms of acute otitis cited by the respondents were otalgia (100%), purulent otorrhea (99.2%), fever (97.2%), blocked ear sensation (96.4%) and hypoacusis (83.2%). The diagnostic attitudes towards acute otitis media or otitis externa according to the respondents are summarized in [Table 2](#).

Among the physicians surveyed, 82.6% had never requested a paraclinical examination for the diagnosis of otitis; others rarely and often requested a paraclinical examination, namely 13.7% and 3.1% respectively. The paraclinical examinations requested were blood count (66.1%), reactive protein C (61.3%), cytobacteriological examination of pus (56.5%), sedimentation rate (40.3%) and tone audiometry (6.5%).

The complications of otitis retained by the respondents were sepsis (98.3%), meningitis (93.8%), peripheral facial palsy (93.8%), lateral sinus thrombophlebitis (73.4%), cerebellar abscess (70.9%) and subdural empyema (68.9%).

Physicians 'level of knowledge about otitis

According to the scores obtained and the levels of knowledge arbitrarily defined, the general level of knowledge about otitis was good in 182 doctors surveyed (51%), average in 174 (48.7%) and low in 1 (0.3%). The level of knowledge was not significantly related to the respondent current status ($p = 0.317$).

Therapeutic attitudes and practices

The types of otitis already treated by the physician were otitis externa (70.9%), and otitis media (68.3%). A proportion of 11.2% of the respondents stated that they did not know if otitis could be definitely cured.

When it comes to the treatment of otitis, 96.4% of the physicians surveyed reported that they

routinely use an antibiotic. The first-line antibiotic used was Betalactamine (63.4%). In the treatment of ear infections, 70.3% of the physicians surveyed reported using an anti-inflammatory. Nonsteroidal anti-inflammatory drugs (NSAIDs) were used in 73.7% of cases against 26.3% of corticoids. Doctoral students in thesis year (interns) tended to prescribe corticoids more than their seniors ($p < 0.0001$). In the treatment of ear infections, 98% of physicians reported using an analgesic. WHO Step 1 analgesics were used 77.7% of cases. Approximately thirty four percent (34.2%) of physicians prescribed other medications besides antibiotics, anti-inflammatories, and pain relievers. Ear drops were prescribed in 86.1% of cases of otitis externa.

Normal clinical examination was the main criterion for evaluating the effectiveness of otitis treatment, (53.2%). Among the respondents, 213 had already referred a patient with otitis to an ENT (59.7%).

Regarding paracentesis, 39.2% of respondents stated that it is not currently indicated in the treatment of otitis; for 5%, it is an outdated treatment that should no longer be done and 52.7% declared that they had no idea.

The main preventive measures cited by respondents against ear infections were: Avoidance of swimming (54.1%), avoiding the use of cotton swabs (51.8%), and avoidance of using ear drops (26.6%), personal hygiene measures (23.8%). [Tables 3a](#) and [Table 3b](#) details the attitudes and therapeutic practices of the physicians surveyed.

Out of 357 physicians surveyed, 311 physicians (87.1%) had requested training on otitis.

Discussion

This study aimed to describe the knowledge, attitudes

Table 3a: Attitudes and therapeutic practices of the physicians surveyed, Togo, 2020.

	N	number	Percentage
Systematic use of an antibiotic	357		
Yes		344	96.4
No		7	2
No information		6	1.7
First-line antibiotic	344		
Beta-lactams		218	63.4
3 rd generation cephalosporins		55	16
Fluoroquinolones		44	12.8
Macrolides		20	5.8
Polymyxin		3	0.9
Use of an anti-inflammatory drug	357		
Yes		251	70.3
No		106	29.7

Type of anti-inflammatory	251		
Nonsteroidal anti-inflammatory drug		185	73.7
Corticosteroids		66	26.3
Use of an analgesic	357		
Yes		350	98
No		7	2
Analgesic bearing	350		
Tier 1		272	77.7
Tier 2		74	21.1
Not known		4	1.1
Prescription of other drugs	357		
No		232	65
Yes		122	34.2
Not specified		3	0.8
If other drugs, which ones?	122		
<i>In case of otitis externa</i>			
Ear drops		105	86.1
Antihistamine		6	4.9
Anesthetic		4	3.3
Antiseptic		3	2.5
<i>In case of internal otitis</i>			
Ear drops		4	3.3

Table 3b: Attitudes of respondents during the follow-up of the otitic patient, Togo, 2020.

	N	number	Percentage
Primary endpoint for evaluating the effectiveness of otitis treatment?	357		
Normal clinical examination		190	53.2
Disappearance of functional signs		156	43.7
Don't know		8	2.2
Normal paraclinical examination		2	0.6
Not specified		1	0.3
Have you ever referred a patient with otitis to an ENT?	357		
Yes		213	59.7
No		142	39.8
Not specified		2	0.6
If yes, when?	213		
Persistence of symptoms despite treatment		176	82.6
Onset of complications		31	14.6
Upon suspicion from patient complaints		2	0.9
From diagnosis		2	0.9
Not specified		2	0.9

and practices of general practitioners on ear infections in Lomé. There were no updated data from physicians practicing in Togo and specifically in Lomé, which could have served as a basis for sampling. Nevertheless, we have considered the number of general practitioners registered at the National Order of Doctors of Togo in 2019 as well as physicians in specialization enrolled in the 2018-2019 academic year and the number of doctoral students in thesis year of three successive graduating classes from the Université de Lomé (2016-2017; 2017-2018; 2018-2019) as the sampling base. We believe that this workforce can be considered as representative of the medical profession in general medical practice in Lomé and which may face the management of ear infections.

The findings of this research may reflect the knowledge and practices of physicians in the management of otitis in Togo because Lomé, being the study framework, is the capital of Togo and the majority of physicians are concentrated there. It should be noted, however, that the fact that the sample is essentially at the beginning of a medical career could constitute a selection bias and therefore a limitation in this study.

Bourrous, et al. [14] conducted a similar study on the management of AOM in the Wilaya of Agadir (Morocco) with 170 general practitioners. Our response rate was 89.2%, close to 91.1% in the study conducted by Bourrous, et al. in Morocco compared with 77.2% in the study by Flatin, et al. [12] in North Benin. This high response rate in our study is because an appointment was made beforehand with the physicians who were surveyed at the times they were available.

Aubert [15], for his research on the practice of general practitioners on otoscopic examination in Île de France, sent questionnaires to physicians by post. As for Flatin, et al. [12], the survey was conducted by phone call. Like Bourrous, et al. [14], we chose to have the physicians surveyed complete the self-questionnaire in the presence of the interviewers in order to reduce information bias. Indeed, the development of new Information and Communication Technologies makes all information available and accessible, especially those related to ear infections, in real time. However, the question was to assess the gross level of knowledge of physicians on the subject.

The general level of knowledge of the doctors surveyed on otitis was good in 51% and average in 48.7%. Although the level of knowledge was not significantly linked to the current status of the respondent ($p=0.317$), the recent training of our sample could have played a role. On the other hand, the low rate of training through postgraduate courses in our study should challenge us to maintain this acceptable level of knowledge over the years. The wish of at least 87% of our respondents to have training on otitis is a strong sign that they are consolidating their knowledge.

The physicians surveyed had a good command of the factors contributing to ear infections; which is a strength that would enable them to better understand the pathophysiology of the disease. In the study of Amana, et al. [16] conducted in 2006 on 801 cases of otitis externa in Togo, allergy, scratch lesion, foreign bodies in the ear canal and swimming were the main factors. Bourrous, et al. [14] reported in 2008 that enlarged adenoids and upper airway viruses were the main risk factors for AOM. A history of AOM and nasopharyngitis were the main risk factors for AOM in the study by Njifou, et al. [17].

Humidity of the external auditory canal is one of the factors favoring external otitis [8], and is most often found in swimmers, or in other subjects during bathing. Some immune deficiencies, such as immunosuppression can show up as episodes of recurrent ear infections. The role of atopy in the development of AOM was considered a risk factor by 50.6% of general practitioners in Grenoble [18]. Passive smoking can disrupt ciliary movement of the tubal mucosa and thereby promote AOMs. Low socio-economic status plays a role in the occurrence of otitis. In a medical review published by Renoy [19], populations of low socioeconomic level are more exposed to the risk of acute otitis (promiscuity, defective hygiene, malnutrition). Community life is recognized as a contributing factor to AOM. Indeed, the risk of having an episode of AOM is multiplied by three in children in nurseries, the risk of having an episode of AOM before the age of two is multiplied by five [20]. In our survey, living in a community was not cited as a contributing factor to AOM. Awareness of the avoidance and management of these different risk factors could help prevent the majority of ear infections.

Another key point in the survey was the good knowledge of the clinical aspects of otitis externa and AOM by our respondents. Since their diagnosis is clinical, it is essential that the general practitioner knows the key signs. Pain on traction of the pinna or pressure on the tragus is diagnostic of otitis externa. Otoscopic examination is the keystone in the diagnosis of AOM, although functional and general signs are essential, they have no specificity. In this work, 85.6% of physicians considered the congestive or inflammatory aspect of the eardrum to be one of the diagnostic elements of AOM. This proportion was 99% in the Ribot survey [18], 80.4% in that of Flatin, et al. [12] and 71.6% in Bourrous, et al. [14]. In practice, the inflammatory aspect of the eardrum in an infectious context makes the diagnosis of AOM and this aspect can evolve toward a purulent retrotympanic collection and perforation with otorrhea. Paraclinical examinations are not necessary for diagnosis unless a bacteriological study is considered or in the event of complications. These complications are well known to our respondents.

In terms of treatment, regardless of otitis, 96.4% of

our respondents reported using antibiotics with beta-lactams being the first choice in 63.4% of cases. In the study by Flatin, et al. [12], the prescription of antibiotics was systematic for 76.8% of physicians against 35.5%, 10.8% and 38% respectively in those of Bourrous, et al. [14], de Ribot [18] and Fermantel [21] in the OMA. In the recommendations for uncomplicated otitis externa, topical antibiotics should be used as first-line treatment and the routine use of oral antibiotics should be discouraged [22]. In our research, the use of ear drops in otitis externa appears to be an adjunct to systemic antibiotic therapy; this is not a good attitude. The use of antibiotics in the treatment of acute otitis media varies widely internationally [23]; the trend in developed countries being that if the patient is over 2 years of age and has uncomplicated AOM or a questionable diagnosis, “watchful waiting” approach antibiotic therapy is recommended [23,24]. As our sample is essentially at its early stages, it is believed that the complexity of the guidelines for the management of certain ENT infections such as AOM can be confusing for prescribers, particularly at the start of their career, as already noted by certain authors [25]. In our Sub-Saharan context, the delay in consultation, the risk of losing the patient to follow-up, the risk of self-medication, which is often inappropriate, could have an impact on the systematic use of antibiotics at the time of diagnosis.

In this study, the physicians surveyed had a low level of knowledge about paracentesis in the treatment of otitis. Although paracentesis has become rare in the management of otitis, it is important to emphasize its indications during teaching to remove any uncertainty in its performance.

Conclusion

The purpose of this investigative study has been to chronicle the way Togolese general practitioners deal with otitis. Interestingly, it has been discovered that ear infections are serious diseases that general practitioners are struggling with on the daily basis. Their frequency contrasts with the scarcity of African scholarship on this subject. Indeed, this study has succeeded in describing the raw theoretical knowledge of physicians on ear infections in Lomé. It appears that the general level of knowledge was good to average. This theoretical knowledge was mainly acquired during their initial university medical training. They had a good command of the factors that promote otitis, a good knowledge of the clinical aspects, the complications and some therapeutic aspects of ear infections. Moreover, they equally had a good attitude towards a patient with otitis who failed a first treatment. However, without disregarding our working conditions, there is a trend towards systematic general antibiotic therapy with no distinction of the form of otitis, which goes against international recommendations. Equating

medical practices in the field of otitis to international recommendations constitutes our outlook.

Declarations

Ethics approval and consent to participate

Obtained.

Competing interests

The authors declare that they have no competing interests.

Funding

None.

Authors' contributions

WF, EP, WD and MB wrote the first version of this manuscript. WF and MB did the literature search. BA and EB proofread and corrected the manuscript. All authors have read and approved the manuscript.

Acknowledgements

Not applicable.

References

- (1996) Conférence de consensus en thérapeutique anti-infectieuse de la SPILF. Quelle prise en charge pour l'otite moyenne aiguë. *Med Mal Infect* T26: 336-338.
- Le Saux N, Robinson JL (2016) Management of acute otitis media in children six months of age and older. *Pediatr Child Health* 21: 39-50.
- Froom J, Culpepper L, Jacobs M, DeMelker RA, Green LA, et al. (1997) Antimicrobials for acute otitis media? A review from the International Primary Care Network. *BMJ* 315: 98-102.
- Pino-Rivero V, Rejas Ugena E, Keituqwa Yanez T, Alcaraz Fuentes M, Marcos Gracia M, et al. (2003) Descriptive study of 21,804 ENT emergencies in a third level hospital. *An Otorrinolaringol Ibero Am* 30: 237-245.
- Ong YK, Chee G (2005) Infections of the External Ear. *Ann Acad Med Singap* 34: 330-334.
- Guest JF, Greener MJ, Robinson AC, Smith AF (2004) Impacted Cerumen: Composition, Production, Epidemiology and Management. *QJM* 97: 477-488.
- Osguthorpe JD, Nielsen DR (2006) Otitis Externa: Review and Clinical Update. *Am Fam Physician* 74: 1510-1516.
- Beers SL, Abramo TJ (2004) Otitis Externa Review. *Pediatr Emerg Care* 20: 250-256.
- Jabor MA, Amedee RG (1997) Cerumen Impaction. *J La State Med Soc* 149: 358-362.
- (2007) *Epidemiology and Prevention of Vaccine-Preventable Diseases: "The Pink Book"*. (10th edn), 257-270.
- Boko E, Awesso P, Dolou W, Amana B, Kpemissi E (2010) Otagie: Epidémiologie et étiologies. *J Rech Sci Univ Lomé* 12: 267-271.
- Flatin MC, Hounkpatin SHR, Attinsounon CA, Toungou AZ, Bouraima FA, et al. (2018) Care for Acute Otitis Media in Children by General Practitioners in North Benin in 2017. *Int J Infect Dis Ther* 3: 24-29.

13. Agrinier N, Baumann C, Fournell I (2010) Chapitre 3 - L'enquête descriptive simple.
14. Bourrous M, Draiss G, Amine M, Abouzoubair A, Bouskraoui M (2011) Enquête sur la prise en charge de l'otite moyenne aiguë chez l'enfant de moins de dix ans par les médecins généralistes. *Journal de Pédiatrie et de Puericulture* 24: 8-12.
15. Aubert D (2012) L'examen otoscopique, étude de pratiques en Médecine Générale. *Médecine humaine et pathologie*, dumas-01469537.
16. Amana B, Pegbessou E, Patassi A, Boko E, Kpemissi E (2014) Aspects épidémiologiques, cliniques et thérapeutiques des otites externes: À propos de 801 cas. *Pan Afr Med J* 17: 142.
17. Njifou N, Njock R, Essama L, Moby H, Motah M, et al. (2013) Profil de la pathologie ORL à l'hôpital Laquintinie de douala. *Med Afr Noire* 60: 416-418.
18. Ribot F (2005) Enquête sur les pratiques des médecins généralistes et des pédiatres grenoblois concernant la prise en charge de l'otite moyenne aiguë de l'enfant, comparées aux recommandations. Thèse Doctorat Médecine, Grenoble, 5024.
19. Renoy S (2006) Pediatric acute otitis media and complications. *Rev Med Brux* 27: S243-S249.
20. Ovetchkine P (1999) Recurrent otitis: What is the place of complementary examinations? *Arch Pédiatr* 6: 893-897.
21. Fermantel A (2008) Evaluation de la prise en charge de l'otite moyenne aiguë du nourrisson de plus de trois mois et de l'enfant en médecine de ville. Comparaison des prescriptions médicales avec les recommandations de l'AFSSAPS de 2005. Enquête auprès des médecins généralistes et des pédiatres libéraux du département du Nord. Thèse Doctorat Médecine, Département du Nord.
22. Pabla L, Jindal M, Latif K (2012) The management of otitis externa in UK general practice. *Eur Arch Otorhinolaryngol* 269: 753-756.
23. Atkinson H, Wallis S, Coatesworth AP (2015) Acute Otitis Media. *Postgrad Med* 127: 386-390.
24. Shirai N, Preciado D (2019) Otitis Media: What is new? *Curr Opin Otolaryngol Head Neck Surg* 27: 495-498.
25. Dallas A, van Driel M, Morgan S, Tapley A, Henderson K, et al. (2017) Antibiotic prescribing for acute otitis media and acute sinusitis: A cross-sectional analysis of the ReCENT study exploring the habits of early career doctors in family practice. *Fam Pract* 34: 180-187.

LETTER OF REQUEST FOR PARTICIPATION IN THE SURVEY ON « KNOWLEDGE, ATTITUDES AND PRACTICES OF GENERAL PRACTITIONERS REGARDING EAR INFECTIONS IN LOME(TOGO) »

Subject : Request to participate in a scientific survey

Sir/Madam,

I have the honor to respectfully ask you to fill out the attached questionnaire on « **Knowledge, attitudes and practices of general practitioners regarding ear infections in Lomé (Togo)**».

This is a study that is part of an improvement in generalist-ENT specialist collaboration for better management of otological pathology in TOGO.

For the reliability of the study, we would be grateful if you could respond spontaneously.

Counting on your collaboration and your availability, we ask you to receive our deep gratitude.

Do you agree to participate in the study by completing the questionnaire ? (Approximately 10 minutes) : consent granted : No Yes

Signature of the interviewer

Signature of the interviewee

SURVEY SHEET ON « **Knowledge, attitudes and practices of general practitioners regarding ear infections in Lomé (Togo)**»

Date.... /... .. / 2020

Identification number :

1. In which medical faculty have you defended or are preparing your doctoral thesis?

R :

2. What is your thesis defense year for obtaining a doctorate in medicine ?

R :

3. Are you a general practitioner, resident, intern ?

Generalist Resident Intern

4. Have you ever heard of ear infections ?

Yes No

5. if yes to question 4, by what means (s) were you informed ?

α) University course (initial training)

β) Post-graduate education

χ) Medical press

δ) Radio and television broadcasts

ε) By patients

φ) Others : specify

6. If university course (initial training), in which subject(s) did you receive a chapter on ear infections ?
- α) ENT
- β) pulmonology
- χ) infectious disease
- δ) pediatrics
- ε) Others : specify (.....)
7. What is an ear infection ? (Check ONLY ONE)
- α) inflammatory and / or infectious damage to all ear structures
- β) inflammatory and / or infectious disease of only viral origin of an ear structure
- χ) inflammatory and / or infectious disease of only bacterial origin of an ear structure
- δ) inflammatory and / or infectious disease of viral, bacterial or fungal origin of an ear structure
- ε) inflammatory and / or infectious diseases of viral, bacterial or fungal origin of the external auditory canals
- φ) Don't know
8. What are the contributing factors for ear infections ?
- α) diving and swimming e) immunosuppression
- β) infant f) Smoking
- χ) recurrent rhinitis g) abuse of ear drops
- δ) Allergy h) poverty
- ι) Don't know
9. What are the different types of ear infections ?
- a).....
- b) Don't know
10. What is the most common form of otitis in adults ?
- a).....
- b) Don't know
11. What is the most common form of ear infection in children ?
- a).....
- b) Don't know
12. An ear infection is always acute
- a) True b) false c) Don't know
13. What are the symptoms that can be seen in acute ear infections ?
- α) purulent otorrhea b) earache c) feeling of blocked ear
- d) hearing loss e) fever f) Don't know
14. Regarding acute otitis media : its diagnosis is clinical ?
- Yes No Don't know

If so, in front of which clinical sign(s) do you make the diagnosis of acute otitis media ?

R :

15. Regarding acute otitis media : is the diagnosis otoscopic ?

Yes No Don't know

16. Regarding diffuse otitis externa : its diagnosis is clinical ?

Yes No Don't know

If so, in front of which clinical sign(s) do you make the diagnosis of diffuse otitis externa ?

R :

17. Regarding diffuse otitis externa : is the diagnosis otoscopic ?

Yes No Don't know

18. Do you ask for a paraclinical examination for the diagnosis of ear infections ?

- α) always
- β) frequently
- χ) quite often
- δ) rarely
- ε) never

If a or b or c or d, which ones ?

19. What are the complications of ear infections for you ?

- α) peripheral facial palsy
- β) cerebellar abscess
- χ) sepsis
- δ) subdural abscess
- e) meningitis
- f) lateral sinus thrombophlebitis
- g) Others (.....)
- h) Don't know

20. Have you ever treated a patient for ear infections ?

Yes No

If yes

- α) frequently
- β) quite often
- χ) rarely
- δ) very rarely

21. What type(s) of ear infections have you ever treated ?

R :

22. In your opinion, can otitis be permanently cured ?

Yes No Don't know

23. Do you routinely use an antibiotic in the treatment of acute ear infections ?

Yes No

If so, which molecule in first intention ?

.....

24. Do you use an anti inflammatory drug in the treatment of acute ear infections ?

Yes No

If yes, NSAIDs Corticosteroid

25. Do you use an analgesic in the treatment of acute ear infections ?

Yes No

If so, what level ? 1 2 3

26. Do you prescribe any other drugs besides antibiotics and anti-inflammatory drugs for the treatment of acute ear infections ?

Yes No

If yes, What other medication(s) ? And for what form of otitis ?

.....

27. On which main endpoint do you rate the effectiveness of treatment against otitis ?

(Check ONLY ONE)

α) A normal paraclinical examination

β) disappearance of functional signs

γ) a normal clinical examination

δ) Don't know

28. Have you ever referred a patient with otitis to an ENT ?

Yes No

If yes, at what time ? (Check ONLY ONE)

α) persistence of symptoms despite treatment

β) on the occurrence of a complication

γ) as soon as the diagnosis made

δ) upon suspicion from patient complaints

29. What do you think of paracentesis ?

α) little indication at present

β) treatment over, not to be done

γ) treatment of choice for ear infections, to be done systematically.

δ) don't know

30. What practical advice would you give to the population to avoid ear infections ?

.....
.....

31. Would you like to have training on ear infections ?

Yes No

We thank you.