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NOMA OR "FACE OF POVERTY": UPDATE ON ITS MANAGEMENT IN TOGO

Dental Science

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ABSTRACT

Noma is a gangrenous stomatitis that turns the patient's face into a "ghost"
The aim was to provide an update on the management of noma in Togo.
Method: This is a descriptive study from January 2000 to December 2009 in the departments of Pediatrics, of Stomatology and Maxillofacial Surgery and of ENT at the University Hospital Centers and Regional Hospitals in Togo.
Results: The series had 35 subjects including 24 children, (68%). Malnutrition was 92% and poor oral hygiene 88%. Ulcero-necrotic gingivostomatitis was the most recorded. Rehydration (68%) associated with surgery (44% of cases) were the treatments.
Conclusion: prevention, or early management, should reduce the incidence of noma in Togo.

KEYWORDS

Ulcero-necrotic gingivostomatitis, Noma, Treatment,

Introduction

Noma is a gangrenous stomatitis of the orofacial sphere which starting point is endobuccal. It is an ulcerative process of the soft tissues and underlying bones. It is a mutilating disease that turns the face of the affected patient into a "ghost". The annual incidence of noma is estimated at between 100,000 and 140,000 cases and the prevalence at 770,000 cases; the exact statistics remain difficult to specify. (Enwonwu, Falkler, & Philips 2006, Tonna, Lewin, & Mensh, 2010) Noma mainly affects children weakened by malnutrition and severe childhood diseases in Africa and is therefore preventable. (Weledji, & Njong, 2016, Ogbureke K & Ogbureke E, 2010) In adults with noma, there is essentially a defective immune system. Patients with noma sequelae are stigmatized and socially marginalized. Favorable factors are an indicator of poverty; hence the aphorism "face of poverty" given to noma because of the aesthetic and functional sequelae left on the face. The main aim of our study is to evaluate the therapeutic management of noma in Togo in order to propose codified national strategies for the prevention and treatment of this medical condition.

1. Method

This was a descriptive, retrospective, multicenter national survey of patients affected with noma and treated in the five Regional Hospitals (RH) and the three University Hospital Centers (UHC) in Togo. The departments of Odonto-Stomatology and Maxillofacial Surgery, of ENT, and of Pediatrics and Nutrition provided the framework for this survey. The study covered a period of ten years, from January 1, 2000 to December 31, 2009. Included were records of patients admitted and treated for noma during this period in the said centers. A pre-established survey sheet allowed the collection of epidemiological, clinical and therapeutic data. These data were analyzed using the Epi info software.

2. Results

In total, 35 cases of patients with noma were selected. Twenty-four patients (68%) were children, ie 0.02% of hospitalizations of children under 05 in Togo. Twenty patients were male against 15 female, a sex ratio of 1.33. The average age of the patients was 7 years old. The average incidence was 3.5 cases / year, with extremes of 0 and 9 cases. Of the five economic regions in Togo, the savanna region in the far north of the country alone recorded 11 cases (40%). Eight cases of noma (22.9%) were diagnosed at an early stage, 17 cases (48.6%) at the advanced stage and 10 cases (28.6%) at the stage of sequelae. The gangrenous gingivostomatitis (10 cases) and ulcero-necrotic gingivostomatitis (10 cases) were the main clinical forms encountered in our series. The topography of the lesions was labio-jugal in 24 patients (68.6%) as shown in Figure 1, with orbital extension in 11 patients (31.4%).

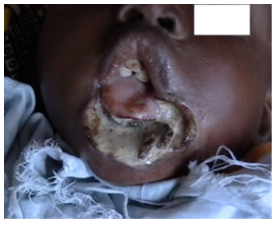

Figure 1: Case of progressive Noma of the child, in acute phase, and labio-jugal extension.

Protein-caloric malnutrition was found in 23 patients (65.7%) as a predisposed condition (Figure 2)

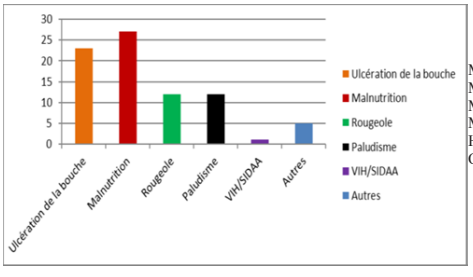

Figure 2 : Distribution of cases according to the contributing factors
Poor oral hygiene was found in 22 patients (88%) as shown in Table I.

Table I: Distribution of patients according to the symptomatology in the acute phase

	Present		Absent		
	Number	%	Nuber	%	Total
Pains	20	80	05	20	25
Poor oral hygiene.	22	88	03	12	25
Swelling	13	52	12	48	25
Removal sulcus	10	40	15	60	25
Deterioration of the general status	20	80	05	20	25
Fever	21	84	04	16	25
Dehydration	14	56	11	44	25
Malnutrition	**23**	**92**	**02**	**08**	**25**
Anemia	20	80	05	20	25

Resection and removal of necrotic tissue was required in 11 patients (31.4%).

Treatment of patients in acute phase required resuscitation; with parenteral or enteral hyperprotein and hypercaloric feeding by the nasogastric tube in 12 patients (34.3%) and rehydration with

hydroelectrolyte balance in 17 patients (48.6%). The children benefited in all cases from antibiotic therapy and local care. Eight cases have evolved towards a cure without sequelae.

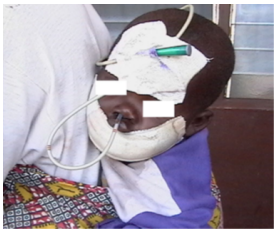

Figure 3: Postoperative dressing, for the same case of Figure 1, with a nasogastric tube, for feeding.As a progressive complication, maxillary damage was found in 8 patients (22.9%), shown in Table II.

Table II: Distribution of cases according to complications leading to deaths.

Complication	Number	Frequence (in%)
Damage to the maxillary	5	71.44
Damage to the maxillary sinus	3	42.85
Damage to the nasal pyramid	7	100
Damage to the orbit	5	71.44
Bilateral facial damage	2	28.56

Twelve cases (34.3%) of noma evolved into sequelae with permanent constriction of the maxillary (10 cases), amputation of a nose (1 case) and a case of aesthetic and functional sequelae; retractable scar and lower labial salivary incontinence.

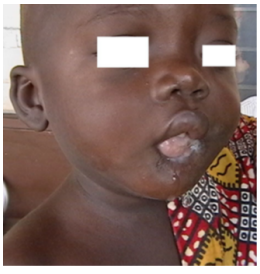

Figure 4: Result at 1 month postoperatively, the same case of Figure 1; noma sequelae with a retractable scar and lower labial salivary incontinence.

A total of 7 deaths were recorded including 5 children aged 0-5 years in advanced malnutrition, one death in an 18-year-old adolescent and in a 25-year-old adult in a context of severe sepsis.

No patient at the stage of sequelae had plastic surgery that could have brought a functional and aesthetic benefit and facilitated social reintegration.

Preventive measures have been undertaken mainly through the application of oral and dietary hygiene, as well as regular recurrence screening: monthly control in the first year, followed by two visits each year to these subjects at risk.

3. Discussion

Several pathogens have recently been implicated in the occurrence of noma. (Bolivar, Whiteson, Stadelmann, Baratti-Mayer, Gizard, & Pittet, 2012) The main germs are: revotella intermedia, peptostrept ococus sprochaete and Borrelia vincenti in association with an anaerobic bacterium of the fusobacteria family. The action of these polymicrobial agents is thought to be favored by malnutrition, immune deficiency, infections and poor oral hygiene. (Huyghe, and al, 2013) The 16S rRNA gene was associated with the occurrence of Noma in children in Niger. (Whiteson and al, 2014) All these data explain that the etiopathogenesis of noma has not yet been clearly elucidated. Thirty-five records of patients with noma were retained in 10 years (3.5 cases per year). These results are superimposable in Burkina Faso where in 9 years, 55 cases were recorded (5.5 cases per year) (Konsem, Millogo, Assouan, & Ouedraogo, 2014) Eight cases of noma (22.9%) were diagnosed at an early stage, 17 cases (48.6%) at the advanced stage and 10 cases (28.6%) at the stage of sequelae. These underestimated results seem weak compared to Senegal where in 13 years of study, 199 cases of noma were identified with 36.7% of acute forms and 63.3% of sequelae. Arid desert regions such as northern Togo near Burkina Faso or some Senegalese regions are most at risk. Our treatment in the acute phase required resuscitation; with a hyperproteid and hypercaloric diet in 12 patients (34.3%) and rehydration with hydroelectrolyte balance in 17 patients (48.6%). The children benefited in all cases from antibiotic therapy and local care. High-protein hypercaloric diet remains important in the treatment of noma because it strengthens the immune system and considerably reduces mortality (Weledji, & Njong, 2016) Resection and removal of necrotic tissue was required in 11 patients (31.4%). Twelve cases (34.3%) of noma evolved into sequelae with permanent jaw constriction type in 10 cases (28.6%) and amputation of a wing of nose in 2 cases (5.7%). Restorative and aesthetic surgery with sometimes questionable results remains a challenge in our developing countries (Hartman, Van Damme, Rayatt, & Kuokkanen, 2010, Bello, 2012) There were 7 deaths (20%) including 5 children aged 0 to 5 years of advanced malnutrition, one death in an 18-year-old adolescent and in a 25-year adult immunodepressed by HIV in a context of severe sepsis. Heavy mortality can sometimes be as high as 70 to 90% in some series (Barrera, Connor, 2012; Masipa, Baloyi, Khammissa, Altini, Lemmer, & Feller: 2013) Only the early management of noma allows to avoid the occurrence of complications with sequelae sometimes quite heavy and expensive requiring a functional rehabilitation of the jaws in the long term and a supportive psychotherapy (Ogbureke K and Ogbureke E, 2010, Woon, Sng, Tan, & Lee, 2010, Yunusa, & Obembe, 2012)

4. Conclusion

Noma is a serious and mutilating disease of the orofacial sphere. Favorable factors are an indicator of poverty; hence the aphorism "face of poverty" given to noma because of the aesthetic and functional sequelae left on the face. It poses a real problem of adequate management in Togo. Early diagnosis, adequate management and prevention through community-based programs should reduce the incidence of noma or even eradicate it in Togo.

Conflict of interest: None

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