CANCEROM ORIS (NOMA):
Level of education and occupation of parents of affected children in Nigeria

A.E. OBIECHINA*, J.T. AROTIBA, A.O. FASOLA

INTRODUCTION

Cancrum oris or Noma is a rapidly spreading gangrenous condition affecting the soft and hard tissues of the face. It usually starts from the gingiva and spreads to involve the mouth and face. The disease occurs mostly in children between the ages of 2 and 7 years and leaves in its wake, disabling and disfiguring complications such as ankylosis and partial loss of the jaws, lips and cheeks (Figure 1) (1,2, 3). There is impairment of speech and mastication. The physical and psychological disabilities of these complications in a growing child are all too obvious.

Figure 1: Disfiguring complication of cancrum oris in 6-year-old male with partial loss of the lips and cheek

While some authors (4, 5, 6, 7) have highlighted the problems of surgical reconstruction and rehabilitation in terms of surgical skills, materials and the financial implications, others (8, 9, 10) have stressed the need for the prevention of the disease, rather than the cure.

The causative factors of the disease have been identified as a triad of malnutrition, debilitating disease and poor oral hygiene (11). It was observed recently that affected children live in filthy and unsanitary environment where residential facilities were contaminated with animal faecal matter because these facilities were shared with domestic animals. The authors (12, 13) opined that the situation might explain the presence of Fusobacterium necrophorum in as much as 87.5% of their isolates. Poor oral hygiene as a causative factor, was therefore broadened to poor hygiene. Malnutrition, which decreases host immunity, is occasioned by poverty. The role of poverty as a contributing factor of the disease has been emphasized (3, 8, 10). Educational status, to a large extent mirror the level of ignorance in a community and ignorance could lead to the desire for large families and malnutrition. However, articles attributing low level of education and family size as causative factors of cancrum oris are rare in the literature. The aim of this article is to analyze the level of education and occupation of parents of children with cancrum oris.

PATIENTS AND METHODS

The data were extracted from the records of cancrum oris patients, which include case history from the accompanying parents. Patients were seen at Oral and maxillo-facial clinic at the University College Hospital, Ibadan, Nigeria, from 1982 to 1998. The age and sex of the patients and family type, occupation and educational status of the parents were analyzed. Cases with inadequate information were excluded. The level of significance was determined at 5% using Chi square test.

RESULTS

A total of 173 cases were analyzed. Eight cases were excluded because relevant data were missing and their parents could not be located. Ninety-one (52.6%) were males and 82 (47.4%) females representing an approximate ratio of 1:1. Their ages ranged from 1.5 to 11 years with a mean of 4.36 and standard deviation 2.13 years. The age distribution is shown in Figure 2. One hundred and twenty-one (69.9%) were from monogamous family while 52 (30.1%) were from polygamous family. The mean of the total number of children from both family types is presented in Table 1.

Analysis of the level of education of the most educated parent in the family is presented in Figure 3 and revealed...
that 148 (85.5%) had no formal education. There was only one case in which a parent had tertiary education. The child was left at the care of her illiterate grandmother, while her parents were abroad. The relationship between educational level and occupation was significant at p<0.0002.

Table 1: Analysis of family types

<table>
<thead>
<tr>
<th>Family type</th>
<th>Frequency</th>
<th>%</th>
<th>Total no. Of children</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monogamous</td>
<td>121</td>
<td>69.9</td>
<td>571</td>
<td>4.7</td>
<td>1.4</td>
</tr>
<tr>
<td>Polygamous</td>
<td>52</td>
<td>30.1</td>
<td>635</td>
<td>12.2</td>
<td>3.2</td>
</tr>
<tr>
<td>Monogamous &amp; polygamous</td>
<td>173</td>
<td>100</td>
<td>1206</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>

Figure 2: Age distribution

In analyzing the occupation of the parents, the unemployed, peasant farmers, petty traders, labourers/casual workers, artisans/craftsmen and junior civil servants were classified as low income earners and constitute 170 (98.3%). Senior civil servants and businessmen constitute 3 (1.8%) only Table II. The relationship between income status and educational level was highly significant at p<0.0001.

Table II: Occupation of parents

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low income earners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>14</td>
<td>8.1</td>
</tr>
<tr>
<td>Farmer</td>
<td>15</td>
<td>8.7</td>
</tr>
<tr>
<td>Petty trader</td>
<td>40</td>
<td>23.1</td>
</tr>
<tr>
<td>Labourer/casual worker</td>
<td>38</td>
<td>22</td>
</tr>
<tr>
<td>Artisan/craftsman</td>
<td>57</td>
<td>32.9</td>
</tr>
<tr>
<td>Junior civil servant</td>
<td>6</td>
<td>3.5</td>
</tr>
<tr>
<td>Total</td>
<td>170</td>
<td>98.3</td>
</tr>
<tr>
<td>Medium income earners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior civil servant</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Businessmen</td>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Discussion

The causative factors of cancrum oris are well documented and the contributing factors include poverty and lack of health infrastructure (3, 8, 10). This study shows that 98.3% of the cases are from families of low-income earners and buttresses the impact of poverty in cancrum oris. Of interest is the mean of 7.0 children per family which is well above the recommended norm of 2.0 children that has been achieved in most developed countries where cancrum oris has been totally eradicated (14). Based on monthly income of US $8.20, the population of Nigerians below the poverty line is 48.5% and the low-income earners hardly earn that much. The average number of children per family in this study suggests that the families have more children than they can cater for, thus giving rise to malnutrition and its attendant consequences, such as cancrum oris. It also points to the relevance of birth control in the prevention of cancrum oris.

It is of significance that 97.6% of the parents had either primary school or no formal education. This study reveals a highly significant correlation between the level of education, occupation and income status. In Nigeria, empirical evidence shows that there is a steady decrease in the percentage of the poor, as the level of education increase (15). It is therefore evident that meaningful education is a veritable tool for eradicating poverty and malnutrition, moreso because education enhances the acquisition of knowledge and skills, and promotes birth control. Recent review of this devastating disease estimates that
over 100,000 children are affected yearly in developing countries. Between 70-90% of these children die while the survivors are left with gruesome facial deformities. (16,17,18). This situation has aroused the interest of international organisations and action aimed at combating the disease has been taken. The World Health Organization’s strategy against cancrum oris are five fold, namely, prevention and early detection, immediate care; public information and education; epidemiological and etiological research; and referral for treatment of sequel (16). Though laudable, the strategy is unlikely to result in the elimination of the disease. This study though limited in scope, suggests that low level of education, large family size and poverty constitute the breeding ground for cancrum oris. The disease is more frequently seen in the northern part of Nigeria where primary school enrolment is less than 16%, polygamy with large family unit thrives and the population living under poverty line is more than 49% (15). While emphasis is on poverty as contributing factor in cancrum oris, little or no emphasis is placed on the level of education of the parents. Governmental and non-governmental agencies tend to concentrate on alleviating poverty and family planning with less attention on improving the level of education. The impact of meaningful education is far reaching on the well being of the individual and the household. Therefore, greater attention should be directed at improving the educational level in developing countries that have incidence of cancrum oris, if the scourge of the disease is to be totally eradicated.

CONCLUSION
This study suggests that apart from poverty, large family units and low educational status of parents are contributing factors in the aetiology of cancrum oris.

REFERENCES
1 - ENWONWU C.O.

RESUME
173 cas de patients atteints d’un cancrum oris, amenés par leurs parents au C.H.U. d’Ibadan au Nigeria, furent analysés. 52,6 % soit 91 personnes étaient des hommes et 47,4 % soit 82 personnes étaient des femmes. Leur âge varie de 1.5 à 11 ans avec une moyenne de 4.36 (écart-type 2.13) ans. 69,9 % parmi les 121 et 30.1 % parmi les 52 personnes étaient respectivement des familles monogames et polygames. La moyenne d’enfants par famille était de 7. Le nombre de parents sans formation professionnelle était de 85.5 % (148 personnes) et 98.3 % avaient de faibles revenus. La relation qui existe entre la profession, le salaire et le niveau d’éducation était grandement significative. Cette étude suggère que la pauvreté, une famille nombreuse et un niveau scolaire faible sont des facteurs déterminants dans l’étiologie du cancrum oris.

REFERENCES
1 - ENWONWU C.O.

RESUME
173 cas de patients atteints d’un cancrum oris, amenés par leurs parents au C.H.U. d’Ibadan au Nigeria, furent analysés. 52,6 % soit 91 personnes étaient des hommes et 47,4 % soit 82 personnes étaient des femmes. Leur âge varie de 1.5 à 11 ans avec une moyenne de 4.36 (écart-type 2.13) ans. 69,9 % parmi les 121 et 30.1 % parmi les 52 personnes étaient respectivement des familles monogames et polygames. La moyenne d’enfants par famille était de 7. Le nombre de parents sans formation professionnelle était de 85.5 % (148 personnes) et 98.3 % avaient de faibles revenus. La relation qui existe entre la profession, le salaire et le niveau d’éducation était grandement significative. Cette étude suggère que la pauvreté, une famille nombreuse et un niveau scolaire faible sont des facteurs déterminants dans l’étiologie du cancrum oris.

REFERENCES
1 - ENWONWU C.O.

RESUME
173 cas de patients atteints d’un cancrum oris, amenés par leurs parents au C.H.U. d’Ibadan au Nigeria, furent analysés. 52,6 % soit 91 personnes étaient des hommes et 47,4 % soit 82 personnes étaient des femmes. Leur âge varie de 1.5 à 11 ans avec une moyenne de 4.36 (écart-type 2.13) ans. 69,9 % parmi les 121 et 30.1 % parmi les 52 personnes étaient respectivement des familles monogames et polygames. La moyenne d’enfants par famille était de 7. Le nombre de parents sans formation professionnelle était de 85.5 % (148 personnes) et 98.3 % avaient de faibles revenus. La relation qui existe entre la profession, le salaire et le niveau d’éducation était grandement significative. Cette étude suggère que la pauvreté, une famille nombreuse et un niveau scolaire faible sont des facteurs déterminants dans l’étiologie du cancrum oris.

4 - ADEKEYE E.O, ORO R.A.

5 - ERDMANN D, SCHIERLE H, SAUERBIER M, GERMANN G, LEMPERLE G.

6 - NATH S, JOVIC G.

7 - DEAN J.A, MAGEE W.

8 - OBIECHIN A.E.

9 - OUOBA K, SANOU I, DAO M, KAM L, OUEDRAOGO A, OUEDRAOGO R, SAWADOGO A.
Progressive noma: about 27 cases seen at the national Hospital Centre of Ouagadougou (French). Dakar Medical. 1998; 43: 45-48.

10 - LAZARUS D, HUDSON D.A.

11 - SHAFER W.G, HINE M.K, LEVY B.M.

12 - ENWONWU C.O, FALKER W.A JR, IDIGBE E.O, AFOABI B.M, IBRAHIM M, ONWUJEKWE D, SAVAGE 0, MEEKS V.I.

13 - FALKER W.A JR, ENWONWU C.O, IDIGBE E.O.

14 - HAUB C, KENT M.M, YANAGISHITA M.

15 - HUMAN DEVELOPMENT REPORT, NIGERIA.

16 - EMSLIE R.D.

17 - ADOLPH H.P, YUGUEROS P, WOODS J.E.