

A Community-Based Survey Determining the Prevalence of Human Immuno-Deficiency Virus Amongst the Baka and Bantu Populations in the Abong-Mbang Health District, Cameroon.

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Abstract

Background: The Human Immunodeficiency Virus (HIV) is a global issue still affecting many people in different communities and community-level interventions maybe helpful in population-focused HIV prevention. The pygmy populations' traditional hunter-gather life style is observed to be changing. Because of the transformations of the traditional lifestyles of pygmies caused by agriculture and infrastructure projects, their health situation too is observed to be changing. Numerous findings on HIV have been reported in literature but to the best of our knowledge, very few studies on the prevalence of HIV in the Baka people in the Abong-Mbang district of Cameroon exist. The study had as main objective to determine the prevalence of HIV in the Baka and Bantou communities who live and interact together.

Method: A community based sero-epidemiologic survey of HIV infection was carried out. 529 people took part in the study. After pre-counselling, venous blood (3ml) was collected from each participant into an EDTA tube. Determine was used as the first-line test, Immunocomb® ELISA HIV-1/2 was used as a second line test and Western blotting was done as a confirmatory test. Data was analyzed using SPSS version 20 software package.

Results: The HIV prevalence in the Baka community was found to be 2.1 %. The HIV-prevalence in the Bantou community was 4.8 %. The age group 41-50 years had the highest HIV-prevalence (8.06 %). Life style factors that significantly affected the prevalence of HIV were; Knowledge about HIV, HIV prevention, and the presence of multiple sexual partners.

Conclusion: Contrary to the local believes of absence of HIV in the Baka population, HIV is shown to exist. Baka people's knowledge about HIV/AIDS is limited. Educating on HIV prevention will be important to control the spread in the Baka community.

Keywords: Baka bantou communities • Human immunodeficiency virus • Prevalence survey • Cameroon

About the Study

The health situation of Pygmies is changing because of the transformations of their traditional lifestyles and cultures of the forest hunter-gatherers [1]. Logging, agriculture, infra-structure projects and the creation of protected areas restrict their access to forest resources; many pygmies in turn spend much time in the pools of roadsides, have closer contacts with neighboring Bantou farmers and are more engaged in agriculture, wage labor and the market economy [2]. The health situation of the Pygmies is also affected by

negative stereotypes, exclusion and domination imposed on them by their neighbors and the dominant society.

It's been decades since the Cameroon government enacted the free antiretroviral therapy (ART) for all those who tested positive for HIV [3]. Even with the implementation of this policy the Baka people are unable to benefit because most of them do not know their HIV status and have limited knowledge about HIV. ART has greatly improved the morbidity and mortality of people living with HIV in Cameroon and Africa [4]. Even in the midst of all efforts by the government and different organizations in the fight against HIV/AIDS,

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it continues to progress, especially among indigenous communities and, in particular, among the Baka peoples in Est Cameroon [2]. Most Baka Pygmies spend their days and years in camps in the eastern region of Cameroon, usually, in the forest or along the roads, with their Bantu neighbors. HIV/ AIDS, is not known amongst the Baka peoples of the Abong-Mbang health district. In the Cameroon territory, the Baka peoples are known to possess special supernatural powers [5]. So, the manifestations of the signs and symptoms of AIDS always is associated to some supernatural forces, curses or punishments. With their belief system, embracing simple healthcare services is difficult and even when they do compliance to the regimen is extremely difficult. This causes the Baka people to be vulnerable [6]. In addition, the vulnerable health status of the Pygmies also results from their continuous exposure to modernization, which, over the years, has resulted in a mixing of their population with other people, exposing them to many diseases, like HIV infection. However, the Pygmies infection with HIV is more likely through contact with the Bantou. Very few studies have been carried out to determine the prevalence of HIV in the Baka communities in Cameroon. Ndumbe reported an HIV prevalence in the Pygmy population of eastern Cameroon of 0.7% [7]. In Kaptue reported zero HIV prevalence among the Pygmy population of the southeastern region of Cameroon and northern Congo.

Baka marriages with Bantou are frequent and mostly concern Baka women, more popular because of the low "bride price" and their supposed high fertility rate. Logging, road construction, infra-structure projects such as the Chad-Cameroon pipeline, increasing contamination by the arrival of migrant workers who seek sex with local women is hypothesized to increase the prevalence of HIV. Pygmy women are particularly vulnerable to infection with HIV because of the local belief that they protect their partners from back pain, AIDS and other diseases through their powers as inhabitants of the forest. This possesses a serious risk of HIV transmission to the Baka women.

In the face of this gap in literature and also because of the tendency of modern life aspired by the pygmy people, this study had as general objective to investigate the prevalence of HIV in the Baka and Bantou communities. Specifically, it determined the prevalence of HIV in the Baka and Bantou communities in the Abong-Mbang Health District and investigated the influence of lifestyle of Pygmies in the transmission HIV.

Methodology

A community based sero-epidemiologic survey (cross-sectional) of HIV infection was carried out in order to determine the HIV prevalence in the Baka and Bantou population. The study was carried out in the council area of Mindourou (location of a wood industry) and Kwoamb (>30 km further from the wood industry) in the Abong-Mbang Health District in the East Region of Cameroon. Purposive sampling was used to get the study participants in the Baka and the Bantu communities. Males and females within the ages 13-60 years, (this age is considered the sexually active age group of the communities) who gave their consent participated in the study. The sample size for the study was 510 gotten through the Charan and Biwas sample size determination formula for prevalence studies [8].

Counselling

Pre-counselling was done by qualified staffs working in the HIV-treatment centre in the Abong-Mbang Health district. Pre-counselling was done for each participant before blood was collected. Post-counselling was done for each participant before the test results were handed. The test results were delivered individually and confidentially to the study participants.

Sample collection and HIV testing procedure

Venous blood (3ml) was collected from each subject by certified health personnel into an EDTA tube. Each tube had an identification code belonging to a particular participant. Using plasma, Abbott determine HIV1/2 In-vitro test strips were used for first line screening of the blood samples. Samples that tested positive to the first line test were subjected to Immunocomb® ELISA HIV-1/2 as second line test, according to the manufacturer's instruction and Western blotting test was done for confirmation of the positive samples. After samples were tested for the HIV antibodies using determine and immunocomb as first line and second line test respectively, a total of 19 positives were recorded. Samples from these 19 positives were taken to Centre Pasteur du Cameroon for confirmation by Western blot. Of the 19 samples introduced at centre pasteur the first time, a total of 11 positives were recorded and 8 of the samples reported indeterminate results. Those with indeterminate results were hypothesised to probably undergoing sero-conversion.

Samples were recollected from the patients with indeterminate results and reintroduced in centre Pasteur for another set of western blot test. Out of the 8 indeterminate samples that were introduced, 5 were positives and 3 reported negative results. The result slips of the negative cases reported a probability of serological cross reactivity. With these western blotting results, the total number of positives from the study was reduced from 19 to 16. A questionnaire was also administered to all study participants to determine the effects of life style factors on HIV prevalence. Data was analyzed using SPSS version 20 software package and statistical significance was set at $P < 0.05$.

Ethics

This study was approved by the Cameroon national institutional review board. Administrative approval was gotten from the public health delegation of the east region of Cameroon. All participants in the study signed a consent form and those below the age of 18 years, parents/guardians signed accent forms.

Discussion

This study provides the HIV prevalence of the Baka and Bantou communities of the Abong-Mbang health district population only and their attitudes and practices towards HIV infection. In this community-based study, the overall HIV prevalence in both Baka and Bantou communities, which are rural settings for the health district was 3.1 %. This means that in the Abong-Mbang health district for every 100 persons approximately 3 people are infected with HIV. This value is less than the Cameroon national prevalence reported to be 4.3 % in 2011 by the Cameroon Demographic survey [9]. The HIV-prevalence in the Baka community was 2.1 % and HIV-prevalence in the Bantou

community was 4.8 %. The results showed that the Baka community had a lower HIV prevalence than the Bantou community. These results are similar to the Study that was carried out in the 1980s and 90s in Cameroon and Republic of Congo which showed a generally lower prevalence of HIV-1 in Pygmy people (range 0% - 1.6%) than in neighboring populations (range 0% to 5.4%)[10].

Stratifying the prevalence by gender, it was observed that females had a higher prevalence than males in both communities and in the overall study. In the overall study, it was observed that females had twice higher HIV-prevalence (4.1 %) than the males (2.7 %). This result is similar to the results of the Cameroon demographic survey (2011), which showed that the HIV prevalence was twice as high among women (5.6%) than in men (2.9%)[9]. Among the sampled villages, the highest HIV prevalence of 10.5% was found in the Aviation village while 5 of the sampled villages had zero HIV prevalence. The high prevalence observed in the village called Aviation is probably due to its close proximity to Madouma (A neighbouring village) with a high population and more social activities. The Baka population in Aviation move to Madouma almost on regular basis to drink alcohol and the population of Madouma have farms in Aviation. So, the close social interaction between the populations could impact the prevalence of HIV in Aviation. In Nurmberkelle, due to the creation of agricultural plantations, visitors and workers from other part of the country come to work. During the work period it is reported that they seek sex with the local Baka women.

The prevalence of HIV in communities near Mindourou was 2.63% and the HIV prevalence far from Mindourou was 5.14 %. Conducting a Pearsons Chi square test, the difference in prevalence was not statistically significant ($P = 0.281$). This means that the distance from Mindourou does not affect the prevalence of HIV in the communities. A higher percentage (74%) of the study participants were married and the least percentage (2%) were divorced participants. Among the confirmed positive cases, a high prevalence was found among those who were married. But this difference was statistically insignificant. This is contrary to a study by Shisana et al in 2004 who reported a significantly low HIV prevalence among married people and a high prevalence among unmarried people [10]. In these communities the relationship between marital status and HIV-prevalence is complex. The risk depends on various demographic factors and sex behavior practices (fidelity). Increased prevention strategies that take socio-cultural context into account are needed for married people in the health district. 71% of the study participants had primary level of education, 16% had received no formal education while 13% had secondary education. Participants in the Bantou communities had a higher level of secondary education with 27.8 % having secondary education than the participants in the Baka community with 5.9% secondary education. A higher prevalence was observed in those with primary level of education than in other levels of education in both communities. But this observed difference was statistically insignificant ($P = 0.348$). Education is a strong factor in improving population health by building in individuals the capacity to process and understand risks related to the HIV/AIDS pandemic. Adversely, poor information and education may hinder individuals from analyzing their behavioral choices by masking potential health risks. From a cross tabulation between alcohol consumption and HIV prevalence, highest HIV-prevalence (93.7%) was found in those who reported that they consumed alcohol.

Conducting a Chi square test, the difference was statistically significant. Therefore, consumption of alcohol has an effect on the prevalence of HIV in both communities. Consuming alcohol or other drugs can impair judgment, leading a person to engage in risky sexual behaviors. People with alcohol use disorders are more likely than the general population to contract HIV [11]. Alcohol use is associated with high-risk of sexual behaviors and injection drug use, two major modes of HIV transmission. Highest HIV/AIDS prevalence was found among the Bantou participants who had multiple sexual partners than in the Bantou community. There existed a significant difference between the presence of multiple sexual partners and HIV-prevalence in the Bantou community and not in the Baka community. This means that in the Bantou community, the prevalence of HIV is affected by the presence of multiple sexual partners.

A significant difference ($P=0.04$) was observed between knowledge about HIV/AIDS and prevalence. Participants who used condoms reported different circumstances in which the condoms were used. 74.6% of the respondents reported using condoms only when they had sexual intercourse with someone who wasn't their husband/wife while 24.2% reported using condoms with their husbands/wives. This work had some limitations. The data collection coincided with the farming season. During this period some of the Baka peoples migrated to the farming regions for farming. Some Baka people were also reluctant to participate in this work because they were scared blood collection was very painful [12-15].

Conclusion

The prevalence of HIV is 2.1 in the Baka community and 4.8 in the Bantou community. The changes affecting these communities are inevitably influenced by the dominant factors of modernity, particularly progress, development, and social dynamics in all their aspects. Baka knowledge about HIV/AIDS is limited. Health Educational, Information and communication strategies will need to be put in place to increased awareness on STIs and guidance is also needed.

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