Hepatitis B among young people in Lere health department (Chad)

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BACKGROUND: Hepatitis B is an infectious disease that affects many people worldwide. It may be acute or chronic. Age-specific prevalence varies by geographical region with highest endemicity levels in sub-Saharan Africa and prevalence below 2% in regions such as tropical and central Latin America, North America and Western Europe.

OBJECTIVE: To determine the frequency and characteristics of infected persons with hepatitis B among people from the Lere health department.

PARTICIPANTS AND METHOD: A 2-month cross-sectional survey was performed in eleven villages in the Lere health department, Chad. At least 100 young people were screened in each village giving a total study population of 1,150 (607 males and 543 females aged ≤ 25 years). Those immunized against hepatitis B were excluded. Studied variables were: age, sex, ethnic group and the results of testing.

RESULTS: Hepatitis B tests were positive in 268 cases (23.3%) – 95% of these were from the Moundang ethnic group. Thirty two per cent of boys and 19% of girls aged 15 years were infected; 25% of boys and 13% of girls aged over 15 years were infected.

CONCLUSION: This study shows a high prevalence of hepatitis B in a rural area in Chad. The high proportion among youths aged ≤15 years indicates that the main way of infection is likely to be the fetal- maternal transmission.

Keys words: Hepatitis B, Youth, Chad

Introduction

Hepatitis B is an infectious disease that affects many people worldwide [1].The evolution of this infection can be acute or chronic [2]. In an important proportion the virus may disappear without treatment. However this is infrequent when the virus is transmitted perinatally. Thus many persons live with the hepatitis virus at different stages [2, 3].

A World Health Organization report has shown that 350 billion people are living with hepatitis B. It is endemic in Africa and Asia where 10 to 15% of persons are infected [3,4]. Age-specific prevalence varies by geographical region with highest endemicity levels in sub-Saharan Africa and prevalence below 2% in regions such as tropical and central Latin America, North America and Western Europe [5]. In Chad there has been no previous study to indicate the national prevalence. Available reports are those of routine vaccinations coming from each health department. According to Lere health department there is a high prevalence of hepatitis B among the population compared with the neighboring health department [6]. Our regular observations indicated that a significant number of people with hepatitis complications, such as liver carcinoma and cirrhosis, are coming from Lere department.

The objective of this study was to determine the frequency and characteristics of infected persons with hepatitis B among people from the Lere health department.

Patients and methods

This was a cross-sectional survey carried out over two months (January 1st to February 28th 2015) in Lere health department which is situated in the south-west of Chad, bordering north-west Cameroon.

This department is the land of the Moundang people. Since Chad gained independence in 1960 many other people have migrated to this area. Trade and weekly markets provide opportunities for people to meet.

The survey covered eleven villages. At least one hundred young people were examined from each village. Then a total of 1,150 youths aged under 25 years were recruited (because after the age of 25 years, some of the young are in university).Those immunized against hepatitis B were excluded (161 youths).

Table 1. Positive hepatitis B test results for each ethnic group

Ethnic group	N	Percentage
Moundang	254	95.00
Haoussa	2	0.70
Lame	1	0.35
Moumbaye	1	0.35
Toupouri	1	0.35
Ngambaye	1	0.35
Moussey	1	0.35
Djoukoum	1	0.35
Sara Kaba	1	0.35
Nangtchere	1	0.35
Kim	1	0.35
Arabe	1	0.35
Kera	1	0.35
Sarh	1	0.35
Total	**268**	**100.00**

The study team was supervised by the Director of Lere Health Department. Each participant was screened by the AgHBS strip (DeterminAgHbs: Swe-Care Rapid One-step Test Strip: Manuf Date 2014-05-23, Expire date 2017-05-22 Lot 20140523).

The variables collected were: age, sex, ethnic group and the result of testing. Data were analyzed using Microsoft software 2011.

Results

One thousand three hundred eleven (1,311) youths were screened. One hundred and sixty one (161) were excluded because they were immunized. This left 1,150 youths in the study (607 and 543 girls) of whom 268 (23.3%) tested positive for hepatitis B. Among the positive cases, 254 (95%) were in the Moundang ethnic group - see Table 1.

Discussion

The hepatitis test was positive in 23% of this study population. This is similar to that reported previously (22.3% to 23.1%). [1, 2, 3]. Other studies have indicated a range of 5% to 20% in sub-Saharan Africa [7, 8]. Recent studies quoted a decrease of chronic HBV infection across the world. This is particularly evident in central sub-Saharan, tropical and central Latin America, South East Asia and central Europe [5]. Our findings confirm a high proportion of hepatitis B in the region. Vaccine reports of Lere health department region showed that less than 60% of 1 year-olds were vaccinated against hepatitis B. The 2014 Annual report quoted that less than 30% of those aged 25 years have received vaccine again hepatitis B [9]. This situation allows one to say that the transmission of hepatitis B from mother to child and deficiency of hepatitis B vaccine in Lere health department are factors spreading the infection.

In this survey, the Moundang group was the most numerous. Although this ethnic group is the majority in this area, a high proportion of positive cases seems indicate a link between cases and familial transmission of hepatitis B from mother to child or by using the same infected materials. Previous surveys have reported a familial transmission of hepatitis B among ethnic groups [6, 10], and that the transmission mode within a family is from mother to child. The risk is increased when a brother or sister in the same family is infected. In this case, transmission from mother to child can be the way for contaminating the youth. Transmission can occur during pregnancy or delivery. The lack of immunoglobulin injection and vaccine for babies whose mothers are infected have been cited.

As with all epidemics, there are social and environmental factors that affect the prevalence and incidence of hepatitis B infection. These include age, sex, environmental and social circumstances. Reports show a high incidence of hepatitis B infection in tropical Africa, south Asia and China with an important proportion of infection among newborn and children [11]. Transmission of hepatitis B from mother to child or within families may explain our result. In contrast to those aged 15 years, sexual transmission may be an issue for those aged more than 15 years. A Chad national report [5] and a previous study reported by Foumsou [12] have shown that around the age of 16 years young people are often married. Such behaviors allow the spreading of hepatitis B. In many families, brothers or sisters can share infected objects like blades or needles for cutting hair or nails. For rural people, the lack of information about hepatitis B and its transmission may contribute to maintaining the prevalence of hepatitis B. When people do not know how they can be infected, they will keep the same behavior.

Table 2. Results of screening for hepatitis B by age and gender

Sex	Age range – years	Positive N (%)	Negative N (%)	Invalid N (%)	Total N
Female	≤15	66 (19%)	275 (81%)	0 (0%)	341
	>15-25	26 (13%)	176 (87%)	0 (0%)	202
Male	≤15	110 (32%)	231(68%)	0 (0%)	341
	>15-25	66 (25%)	198 (74%)	2 (1%)	266
Total		**268 (23%)**	**880 (76.5%)**	**2 (0.5%)**	**1150**

Conclusion

This study shows a high prevalence of hepatitis B among young people in Lere (Chad) especially among the Moundang ethnic group. The high proportion among youths aged 15 years indicates that a main way of infection is likely to be maternal transmission. According to this survey, there is a need to improve the rate of immunization.

References

1. Waterson AP, Almeida JD, Weeple PM et al. Hepatis B antigen positive obstetric patients. *Br J Obstet Gaenecol.* 1977; 84: 674-8.
2. Pol S. Epidemiology and natural history of hepatitis B. *Rev. Prat.* 2005; 55: 599-606.
3. Antona D, Lévy-Bruhl D. Epidemiology of hepatitis B in France at the end of the XX century. *Méd Mal Infect.* 2003 ; 33 : Suppl. A : 34-41.
4. Meffre C, Le Strat Y, Delarocque-Astagneau A E et al. Landau, JC. Desenclos. Prevalence of hepatitis B in France, 2003-2004. 41th EASL annual meeting, April 26-30, 2006.
5. Ott JJ, Stevens GA, Groeger J, Wiersma ST. Vaccine Global epidemiology of hepatitis B virus infection: new estimates of age specific HBsAg seroprevalence and endemicity.2012 30(12):2212-9.
6. National institute of statistical and demographic study. Demographic survey number 3. Minister of economy plan and cooperation. 2015. p32.
7. Kiire CF..The epidemiology and prophylaxis of hepatitis B in sub-Saharan Africa: a view from tropical and subtropical Africa.*J Afr Epidemio.*1996: S1; 21-26: S2; 33-51
8. Bull Epidemiol Hebd. 2011 ; (18/19) : 205-228
9. Republic of Chad. National report of routine vaccine. Minister of Health and Social Science. 2014. P 32
10. Gerety RJ, Sweithze IL. Viral hepatitis type during pregnancy, neonatal period and infancy. *J Pediatr.* 1977; 90:368-9
11. Yamanaka T, Takayanagi N, Nakao T et al. Seroepidemiological study of hepatitis B virus (HBV) infection in the rural community in Kenya – changing. Hepatology Research. 2007; 37:S9-S19
12. Foumsou L, Gabkika BM, Saleh A. Obstetric complication among teenage at N'Djamena national reference hospital. *Med. Afr. Noire.* 2014; 61(8/9): 441-447.

Answers to Quiz on infant feeding

1. **What is the definition of 'exclusive breastfeeding'?** Exclusive breastfeeding means giving only colostrum and breast milk (and modern medicines and micronutrients if prescribed), but no other foods, water or other drinks – even in hot, dry places.
2. **For how long does WHO recommend that a baby is exclusively breastfed?** Until the age of 6 months. Giving babies artificial milks and/or other foods, water or other drinks before the age of 6 months, puts them at risk of malnutrition and infection.
3. **List 3 advantages of breastfeeding.** There are many – for example:
   - Breast milk and colostrum contain all the nutrients and water that a baby needs up to the age of 6 months. The nutrients are more easily digested and absorbed, and used more efficiently in the body, than the nutrients in artificial milks.
   - Breast milk and colostrum, unlike artificial milks, contain living anti-infective factors that protect babies against many infections.
   - Breastfeeding helps mothers and babies to bond.
   - Exclusive breastfeeding is an effective method of family planning.
   - Breastfeeding immediately after delivery makes the mother's womb contract, and reduces bleeding; breastfeeding helps the mother to regain her pre-pregnancy weight; and reduces her risk of breast and ovarian cancer.
   - Breast milk costs less than formula, is always ready, and needs no preparation.
4. **How much salt should be added to an infant's complementary foods?** None. There is no need to add salt to an infant's food because she or he needs very little salt even in hot climates. The infant gets enough from breast milk (or formula) or family foods. Too much salt is harmful, and puts too much strain on young kidneys.

Resources

- World Health Organization - Breastfeeding http://www.who.int/topics/breastfeeding/en and Documents on infant feeding/breastfeeding http://www.who.int/maternal_child_adolescent/documents/infant_feeding/en
- Lancet series on Breastfeeding at http://www.thelancet.com/series/breastfeeding
- Consensus Action on salt and health http://www.actiononsalt.org.uk/salthealth/children