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RESEARCH ARTICLE

INTRA-FAMILIAL TRANSMISSION OF HEPATITIS B VIRUS IN ADEN -YEMEN

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Abstract

Hepatitis B virus (HBV) is a major challenge to public health worldwide. Close contacts between susceptible family members and the index cases who live with HBV infection increase the rate intra-familial transmission of HBV. So our study aimed to determine the prevalence of HBV infection among family members of confirmed positive HBV patients and to identify the intra and extra-familial risk factors contributing for transmission of HBV infection among those members**.** Analytical cross-sectional study was conducted on 100 family members who belong to the 14 index cases were included in this study, the average was 7.1(100/14) members. HBsAg in both index cases and family members was determined by using ELISA kit. Analysis of the data was performed by using SPSS (Version 21), the quantitative data were expressed as mean values, (SD) because the data was normal distributed. The qualitative data was expressed as percentages and χ^2 test was used for comparison of two variables to determine the *p- value* where $\leq$0.05 was considered statistically significant. They were 50 (50 %) males with a total mean± SD of age were 25±15.9 years. The overall prevalence of HBV infection was 19 (19. 0%). The highest rates were 41.2% in age group 30—39 years, 22% males, 26.7% married, 19.4% among those family members who were in close contact with female index cases and 40% father relatives. A statistically significance association between HBV infection and age group 30—39 years (p=0.011). There were no positive cases was found among those members who were vaccinated against HBV and no significant association between HBV infection and either intra or extra risk factors among family members. It can be concluded that Intra-familial transmission of HBV infection was high among family member in Yemen. The highest prevalence was found in age group 30-39 years, males, married and among those family members who were in close contact with female index cases. The most frequent relatives with HBV infection were fathers, while a negative HBV cases was observed among mothers and wives and vaccinated members. There were no significant association between HBV infection and either intra or extra risk factors among family members.

Keywords: Intra- familial, Hepatitis B virus, Transmission, Aden.

1. Introduction

Hepatitis B virus (HBV) is contagious life threatening infectious agent of liver that cause Hepatitis B infection [1]. HBV is member DNA viruses that belonging to Hepadnaviridae. It is enveloped and the severity is ranged from mild asymptomatic to severe chronic infection where it may lead to cirrhosis and cancer of liver cells [2]. It is a major challenge to public health worldwide [3]. In 2024, every year, the number of people who die from chronic hepatitis B infection rises and it estimated that more than 250 million of population around the world had chronic HBV infections [4]. Contact with blood or other body fluids of an infected person may consider the main transmission route of virus [5]. Other transmission routs are parenteral, sexual transmission and vertically from mothers to their child [6]. Close contacts between susceptible family members and the index cases who live with HBV infection increase the rate intra-familial (horizontal) transmission of HBV [7]. The presence of infected family members is

significantly increasing the risk of transmission of virus to other members [8]. Despite the mechanism and sequences of spreading of infection among family members is not well known and un ability due to determine if there were the index case or another family member was firstly infected with HBV [9]. The viral DNA HBV is found in almost all body fluids of infected index case. Therefore, transmission to family members occurs through close contact with these fluids [10] and by sharing of infected personal care objects especially razor, face towels, toothbrush and nail clipper [11,12,13,14]. Lack of financial resources or the lack of awareness about the transmission HBV infection through these objects may increase the infection rates among those members [15]. Globally, the prevalence of HBV infection among members of family who in closed contact with index cases ranges from 1.3-61.5% [16,17]. In Yemen, little information is available about interfamilial infection of HBV. Two studies conducted among family members in Yemen in which the prevalent rates were (10.2% and 10.7%) [18,19]. So our study was aimed firstly to determine the prevalence of HBV infection among family members of confirmed positive HBV patients (index cases) who were attending to different hospitals and clinics in Aden and secondly to identify the intra and extra-familial risk factors contributing for transmission of HBV infection among those family members.

2. Subjects and Methods

This an analytical cross-sectional study was conducted on 14 hepatitis B positive patients (index cases) and 100 of their family members who were accepted for participation in the study at AL-Gamhoriah Modern General Hospital and Al-Sadaqa Teaching Hospital) in Aden, Yemen. The data was collected by questionnaires, which contain questions as socio-demographic data, relation to index cases and other questions about risk factors for HBV infection. Five ml of blood were collected in plane tube and after clotting of the blood, the serum was separated and hepatitis B surface antigen (HBsAg) in both index cases and family members was determined by using enzyme-linked immunosorbent assay (ELISA) kit. Analysis of the data was performed by using SPSS (Version 21), the quantitative data were expressed as mean values, standard deviation (SD) because the data was normal distributed and the qualitative data was expressed as percentages and chi-square (χ^2) test was used for comparison of two variables to determine the *p- value* where $\leq$0.05 was considered statistically significant.

3. Results

One hundred family members who belong to the 14 index cases were included in this study, the average was 7.1 (100/14) members. The mean age of the family members was 25±15.9 years. The minimum and maximum of the ages were 1 and 70 years. There were 50 (50 %) males with the mean age of 23±15.0 years, (Table1).

In our study, the prevalence of HBV infection was 19 (19. 0%). The highest rates were 41.2% in age group 30—39 years, 22% males, 26.7% married and 19.4% among those family members who were in close contact with female index cases and 40% father relatives. A statistically significance association between HBV infection and age group 30—39 years (p=0.011) (table 2). There was no positive cases found among those members who were vaccinated against HBV and no significant association between HBV infection and either intra or extra risk factors among family members were found (tables 3).

Table (1): Distribution of family members of HBV cases by age and sex

Age groups/years	Male (n=50)		Female (n=50)		Total (n=100)	
	No.	%	No.	%	No.	%
< 10	10	20.0	10	20.0	20	20.0
10 – 19	11	22.0	6	12.0	17	17.0
20 – 29	15	30.0	15	30.0	30	30.0
30 – 39	7	14.0	10	20.0	17	17.0
≥ 40	7	14.0	9	18	16	16.0
Mean/years	23		26		25	
SD/years	15		16.7		15.9	
Min/years	2		1		1	
Max/years	70		66		70	

4. Discussion

The prevalence of HBV infection among family members in this study was almost same to that conducted by Chakravarty *et al*. from India 19.4% [20] and by Hatami *et al*. from Iran (19.3%) [7]. In contrast, our rate was lower than that reported among family members in different countries as (20-25%) in Iran [21,22], 24.3% in Brazil [23], 29.3% in Egypt [24], 30.6% in India [25], 38% inTurkey [26], and 49.4% and 61.5 % in two Iranian studies [17,21]. Other studies recorded lower prevalence such as 16% in Greece [27], 15.15% in Indonesia [28] and12.1% in Bosnia and Herzegovina [27], 11% in Iran [29], 10.7% and 10.2% in two Yemeni studies [18,19], 10.1% in Brazil [23] and 5.4% in Tanzania [30]. El-Sayed *et al*. from Egypt revealed one of lowest rate 1.3%[16].

Table (2): The prevalence of HBV infection among family members according to age

Variables	HBV + ve		*P-value*
	No.	%	
Age groups/Years			
< 10 (n=20)	0	0.0	--
10–19 (n=17)	1	5.9	0.130
20–29 (n=30)	8	26.7	0.201
30–39 (n=17)	7	41.2	0.011
≥ 40 (n=16)	3	18.8	0.978
Total (n= 100)	19	19.0	--

The prevalence of HBV in our sample was lower than that reported among Yemeni population in Zabeed city (48.83%) and Hodeidah city (42.67%) [31,32]. The main factors contributing to differences in HBV seroprevalence among family members in different countries may be attributed to habitual and sociocultural states of those population[7].

The current study was agreed with that stated in Yemen, Iran and Pakistan in which the highest prevalent rate of HBV infection was observed in the age group 30-39 years [9,18,33]. Mangowi *et al*. revealed a high rate in the age >45 years [30]. Another study in Yemen noted that age group 20-29 had highest prevalence [19].

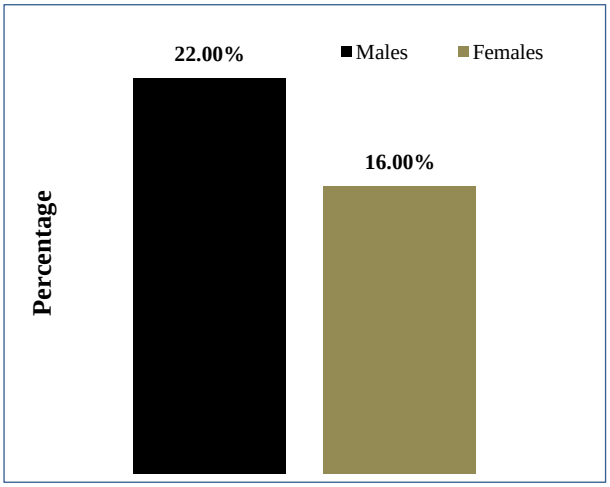

Fig. (1): The prevalence of HBV infection among family members according to their sex

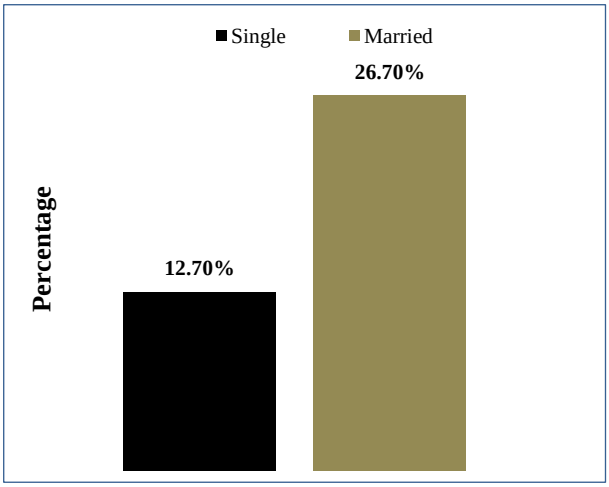

Fig. (2): The prevalence of HBV infection among family members according to their marital status

Table (3): The intra and exra-familial risk factors contracting for HBV infections and vaccination status among family members

Intra-familial Risk factors	HBV +ve		*p*	Extra-familial Risk factors	HBV +ve		*p-value*
	No.	%			No.	%	
Sharing shaving tools (n=7)	1	14.3	0.742	Surgical operation (**n=26**)	7	26.9	0.231
Sharing toothbrush (n=9)	1	11.1	0.527	Blood transfusion (**n=15**)	4	26.7	0.412
Sharing spoon and eating utensil (n = 52)	13	25.0	0.111	Cupping (**n=15**)	2	13.3	0.544
Expose to needles stick (n=7)	2	28.6	0.503	Exposed to needle stick (**n=3**)	1	33.3	0.521
Exposed to biting (n=9)	1	11.1	0.527	Dental procedures (**n=22**)	5	22.7	0.614
Sharing of nail clippers (n=54)	11	20.4	0.705	Tattooing (**n= 6**)	1	16.7	0.881
Sharing of towels (n=18)	1	5.6	0.108	Sharing of ear pricing tools (**n=11**)	0	0.0	0.089
Sharing the same sleeping places (n= 14)	3	21.4	0.803	**Vaccination status**			
Accompany with index cases (n= 3)	1	33.3	0.521	Vaccination (**n= 6**)	0	0.0	--

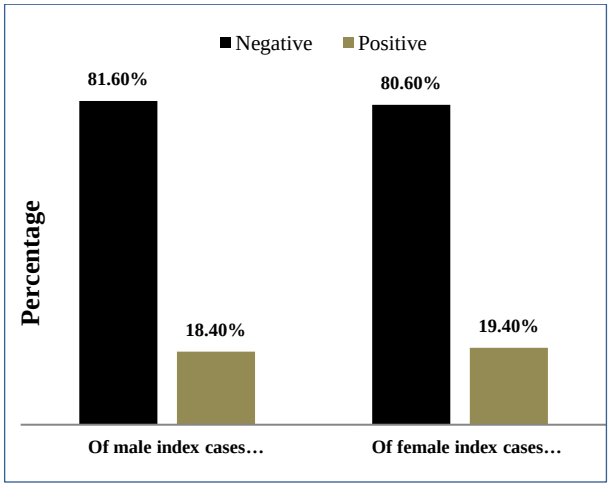

Fig. (3): The prevalence of HBV infection among family members according to their relations to sex of index cases.

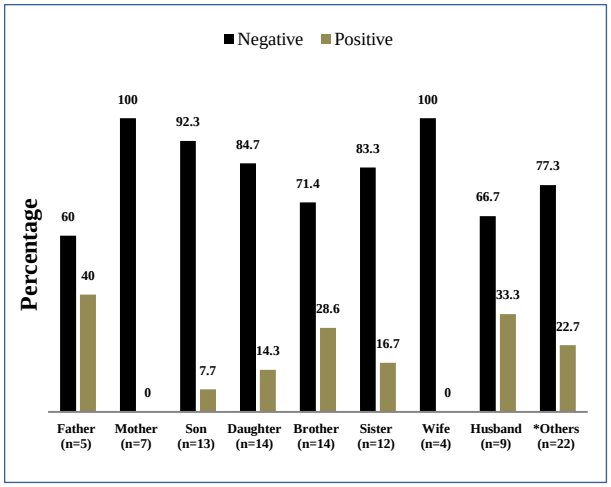

Fig. (4): Clustering of HBV infection among family members according to their relation to the index case

***Others:** are other relative who include grandfathers, grandmothers, nephew, niece, sister in law, daughter in law, grandson and granddaughter.

Different studies showed different results such as in Iran age group 40-49 years and 21-30 [7,34,35], in Tanzania age >45 years[30], in Turkey age groups 41-50 and 51-60 years respectively[36], India, age groups less than 15 years [25] and in Bosnia and Herzegovina in age groups less than10years [27]. This may be attributed to the older adults are more likely exposed to risk factor due to contact with their infected members of family and successful vaccination program against HBV among those population [30].

A variety of studies were in agreement with our results that reported higher prevalence of HBV infection among male family members [17,18,19,24,30,37,38]. One possible explanation for the greater prevalence of HBV among males that they are more likely than females to share needles or other sharp items, have many sexual partners, acquire tattoos, and engage in other risky behaviors that may contribute to the higher prevalence of HBV in this population [30]. Other studies reported highest rate among females [9,27].

Similar results were reported in Bosnia and Herzegovina, Egypt and Yemen that in which highest prevalence was found among family members who were in close contact with female index case[16,27], but disagreed with that conducted in Iran [17,19]. These differences might be attributed to number of female index cases in these studies [19].

A study was conducted in Egypt was agreed with current findings in which the highest prevalence was also found among fathers [16], but it was disagreed with various studies done in brazil, Yemen and Bosnia and Herzegovina, where there was zero case among fathers [19,23,27]. Other researcher reported that highest rates were among mothers [22], parents [28], spouse [9], wives [29], brothers [7,19], and offspring [39]. There was no any HBV case among mothers and wives in our study. This was disagreed with that found in two Iranian studies [22,29]. This may be attributed to that the fathers are more likely to have close contact with infected sons, daughters and other family members [30].

Regarding to vaccination status, there was no positive cases found among those members who were previous vaccinated against HBV. Siddique *et al.*, recorded that 28.8% of vaccinated members had HBV infection [38]. Two studies undertaken in Egypt and Yemen showed that 32.9%, and 14% of those individuals who received vaccine had infection, respectively [19,24].

The limitations of our study were sample size and the inability of the ELISA test to identify occult Hepatitis B virus infection (OBI), and inability to detect viral DNA genome by using molecular techniques.

5. Conclusions

Intra-familial transmission of HBV infection was high among family member in Yemen. The highest prevalence was found in age group 30-39 years, males, married and among those family members who were in close contact with female index cases. The most frequent relatives with HBV infection were fathers, while a negative HBV cases was observed among mothers and wives and vaccinated members. There were no significant association between HBV infection and either intra or extra risk factors and vaccination status and family members.

References

[1] E.I. Obeagu, G.U. Obeagu, D.C. Nwosu, "Hepatitis B and Hepatitis C viral infection: A Review", Int. J. Curr. Res. Chem. Pharm. Sci, vol.3, no.11, pp.10-21, 2016

[2] C. You, "Update on hepatitis B virus infection", 13293-13305, 2014:

[3] G.A. Yendewa "et al." Prevalence of chronic hepatitis B virus infection in Sierra Leone, 1997–2022: a systematic review and meta-analysis", *Am J Trop Med Hyg*,vol.109, no.1, pp.105, 2023

[4] W.H.O. World Health Organization,"publishes new guidelines on hepatitis B". Accessed March 29, 2024. Available at: https://www.who.int/news/item/29-03-2024-who-publishes-updated-guidelines-on-hepatitis-b.

[5] T.T. Thoa "et al." High environmental stability of hepatitis B virus and inactivation requirements for chemical biocides, vol. 219, no.7, pp.1044–1048, 2019

[6] G. Duarte, P. Pezzuto, T.D. Barros G. Mosimann Junior, F.E. Martinez-Espinosa. "Brazilian protocol for sexually transmitted infections 2020: viral hepatitis". Rev Soc Bras Med Trop., vol. 17, pp. 54. May. 2021

[7] H. Hatami, M. Salehi, E. Sanei S. Khosravi , S.M. Alavian." Intra-familial transmission of hepatitis B virus infection in Zahedan". *Iran. Red Crescent Med. J*., vol.15, no.1, pp.4, Jan. 2013

[8] V.R. Pereira, et al., "Risk factors for hepatitis B transmission in South Brazil," Memórias do Instituto Oswaldo Cruz, Vol. 112 pp.544-50, 2017

[9] A. Khan, I. Ahmad, Z. Ahmad, "Intra-Familial Spread of HBV among HbsAg Positive Parents and their Children in a Defined Rural Community of District Peshawar, Pakistan," *Pak. J.* Public. *Health*, Vol.13, no.1 pp.11-4. Mar. 2023

[10] J. Medforth, L. Ball, A. Walker, S. Battersby, S. Stable,. "Oxford handbook of midwifery,". Oxford University Press vol. 9, Mar. 2017.

[11] M. Koroglu et al. "Nail scissors and fingernails as reservoirs of hepatitis B virus DNA: Role of nail scissors in household transmission of hepatitis B virus," Am. J. Infect. Control, Vol. 46, no.7, pp.793-7. Jul. 2018

[12] Y. Rajamoorthy, et al. "Risk behaviours related to hepatitis B virus infection among adults in Malaysia: A cross-sectional household survey," *Clin Epidemiol Glob Health*, Vol, no. 1, pp.76-82, Mar. 2020.

[13] S.M. Varghese, et al. "Together let us confront it: An outbreak investigation of hepatitis B in Pathanamthitta district, Kerala, " *J Family Med Prim Care*, vol. 10, no. 6, pp. 2159-65, Jun. 2021

[14] S. H. Al-Rawi and A. Ibrahim, "The Overlooked Risk Behaviors of Hepatitis B Virus among Medical and Nonmedical Undergraduate Students," Acta Biomedica, vol. 94, no. 2, 2023

[15] S.A. Al-Busafi, R. Al-Harthi, K. Al-Naamani, H. Al-Zuhaibi, P. Priest, "Risk factors for hepatitis B virus transmission in Oman," Oman Med. J, vol. 36, no. 4, e287. Jul. 2021

[16] M.H. El-Sayed, M.K. Mohamed, N. Ahmed, "Intrafamilial transmission of hepatitis B and C among families of multi-transfused Egyptian children," *Egypt. J. Community Med*, Vol.28, no.3, Oct. 2010

[17] A.R. Hsieh et al., "Effects of sex and generation on hepatitis B viral load in families with hepatocellular carcinoma," World J Gastroenterol., Vol. 23, no.5, pp876, Feb.2017

[18] N. Al-Shahari "Interfamilial spread of hepatitis B virus in Sana'a city-Yemen," MSc thesis. Faculty of Medicine and Health Sciences, Sana'a Yemen, 2012.

[19] A.N. Gubran K.A. Al-Moyed, A.M. Al-Haddad, A.A. Ageel, "Intra-Household Transmission of Hepatitis B Virus in Rasd, Abyan-Yemen," *Libyan J. Med. Sc*., Vol.5, pp.50-8, Nov. 2023

[20] R. Chakravarty et al., "Hepatitis B infection in Eastern Indian families: need for screening of adult siblings and mothers of adult index cases," Public Health. Vol. 119, no.7, pp.647-54, Jul.2005

[21] M. Ranjbar, Z. Golzardi, L. Sedigh, S. Nekoozadeh, "Intrafamilial seropositivity of hepatitis in patients with hepatitis B and C virus in hepatitis clinic in Hamadan, Iran,". Annals of hepatology,Vol.11,no.(1,pp.32-6, Jan. 2012

[22] M. Sofian, M. Banifazl, M. Ziai, A. Aghakhani, A.A. Farazi, A. Ramezani, "Intra-familial transmission of hepatitis B virus infection in Arak, central Iran,". *Iran J Pathol*, vlo. 11, no. 4, pp. 328, 2016

[23] C. Lobato et al., "Intrafamilial prevalence of hepatitis B virus in Western Brazilian Amazon region: epidemiologic and biomolecular study,". *J Gastroenterol Hepatol*., vol. 21, no.5, pp.863-8, May. 2006

[24] N. Nemr et al., "Intense intrafamilial transmission of HBV in a rural area in Egypt is a probable cause of non-response to vaccination: A cross-sectional-seroprevalence-community-study", Microbes and Infectious Diseases. Vol. 3, no.4, pp.878-89 ,Nov. 2022

[25] S. Gupta, R. Gupta, Y.K. Joshi, S. Singh, "Role of horizontal transmission in hepatitis B virus spread among household contacts in north India," Intervirology, vol. 51, no.1, pp. 7-13, Feb. 2008

[26] Erol S, Ozkurt Z, Ertek M, Tasyaran MA. Intrafamilial transmission of hepatitis B virus in the eastern Anatolian region of Turkey. ," Eur. J. Gastroenterol. Hepatol., vol. 15,no. 4, pp. 345-9, Apr. 2003

[27] N.N. Salkic, et al., "Intrafamilial transmission of hepatitis B in Tuzla region of Bosnia and Herzegovina," Eur. J. Gastroenterol. Hepatol., vol. 19, no. 2, pp. 113-8, Feb. 2007

[28] N.T. Kambuno, M.F. Bessie, M. Tangkelangi, A.W. Djuma, "Risk factors of intra-familial hepatitis b virus transmission among hepatitis b patients in Kupang,", Indonesia. Glob. Med. Health Commun., vol. 31, pp. 151-6, Aug. 2019

[29] A.H. Alizadeh, et al., "Intra-familial prevalence of hepatitis B virologic markers in HBsAg positive family members in Nahavand, Iran," World J Gastroenterol., vol. 11, no. 31, pp. 4857, Aug. 2005

[30] I. Mangowi, et al.. "Hepatitis B virus infection, associated factors, knowledge and vaccination status among household contacts of hepatitis B index cases in Mwanza, Tanzania,". IJID regions, vol. 10, pp. 168-73, Mar. 2024

[31] M.A. Al-Hegami, A. Al-Mamari, A.S. Al-Kadasse, F.A. Al-Gasha'a, S. Al-Hag, A.A. Al-Hegami, "Prevalence and risk factors of hepatitis B and hepatitis C virus infections among patients with chronic renal failure in Zabeed city, Yemen Republic," Open J. Med. Microbiol., vol.5, no. 3, pp. 136-42, Aug. 2015

[32] E.S. El-Morsy, S. Alghalibi, A.A. Elbialy, K .Baddah, M. Khalifa, "Occult Hepatitis B Virus Infection Among Patients Undergoing Chronic Dialysis in Hodeidah City, Yemen". *Afra.j. basic appl. sci*., vol.3,no.1, pp.64-73, Jan. 2022

[33] A. Katoonizadeh, et al., "Intra-familial transmission of chronic hepatitis B infection: A large population-based cohort study in Northern Iran, pp.436-442, 2018

[34] M.R. Zali, K.A. Mohammad, A.A. Noorbala, B. Noorimayer, S. Shahraz, "Rate of hepatitis B seropositivity following mass vaccination in the Islamic Republic of Iran,". *East Mediterr. Health J*., vol.11, no.1-2, pp. 62-67, 2005.

[35] N. Kasaeian, et al., "Hepatitis B markers in Isfahan, Central Iran: a population-based study," pp. 12-16, 2009.

[36] H. Ucmak, O.F. Kokoglu, M. Celik, U.G. Ergun, "Intra-familial spread of hepatitis B virus infection in eastern Turkey,". *Epidemiol Infect*., vol.135, no. 8, pp.1338-43, Nov. 2007

[37] B. Kusnadi, "Risk Factors Intrafamilial Transmission of Patients With HBsAg Positive In The Mataram City South East Of West Nusa Tenggara," A Thesis submitted to the Main Interest in Field Epidemiology Training Program Public Health Departement, Faculty of Medicine, GadjahMada University Yogyakarta, Indonesia, 2011

[38] A.B. Siddique, M.N. Uddin, K.K. Das, R.S. Biswas, "Seropositivity of HBV & HCV among the Family Members of Chronic Viral Hepatitis Patients," medRxiv, vol.15, pp.2021-05, May. 2021

[39] S. Sali, S. Azarmmanesh, H. Ghalikhani, M. Vaezjalali, "Phylogenetic analysis of hepatitis B virus among household members with HBV chronic infection". *Avicenna J. Med. Biotechno*l, vol. 11, no. 3, pp.221Jul. 2019

مقالة بحثية

انتقال فيروس التهاب الكبد B بين العائلات في عدن –اليمن

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المُلخّص

يعد فيروس التهاب الكبد B من أكبر تحديات الصحة العامة في جميع أنحاء العالم، حيث ان الاتصال الوثيق بين أفراد العائلة التي يوجد فيها شخص مصاب يعرضهم للإصابة بالفيروس، لذا هدفت هذه الدراسة الى تحديد معدل انتشار خمج فيروس التهاب الكبد B بين افراد عوائل تأكد اصابتهم بالفيروس، وتحديد عوامل الاختطار الداخلية والخارجية التي تؤدي الى انتشار الفيروس بين افراد تلك العوائل. اجريت هذه الدراسة ذات المقطع العرضي على حالات ايجابية لفيروس التهاب الكبد B وكذلك افراد عوائلهم، وقد شملت 100 فرد ينتمون الى 14 عائلة، بمعدل 7,1% (14/100) فرد. وقد تم اختبار المستضد السطحي لجميع الحالات باستخدام طريقة مُقَايَسَةُ المُمْتَزّ المَناعِيّ المُرْتَبِطِ بالإنْزِيْم. وحللت النتائج باستخدام برنامج SPSS النسخة 21 وبما ان البيانات الكمية كانت موزعة توزيع طبيعي فقد استخدم الوسط والانحراف المعياري بينما في البيانات النوعية فقد تم تحديد النسبة المئوية بالإضافة الى استخدام اختبار كاي لحساب الاحتمالية للمقارنة بين متغيرين او أكثر حيث اعتبرت نتيجة يساوي او اقل من 05, نتيجة ذا دلالة احصائية. اظهرت نتائج الدراسة ان معدل انتشار خمج فيروس التهاب الكبد B بين العائلات كان 19,0%. وكانت اعلى نسبة انتشار في الفئة العمرية 30-39 سنة وكانت هذه النتيجة ذا دلالة احصائية (القيمة الاحتمالية 0,011) وعند اولئك المتزوجون بنسبة 26,7%. وكان معدل الانتشار عالي ايضا عند اولئك الذين ينتمون الى مصابات اناث بنسبة 19,4، كما اوجدت هذه الدراسة ان اعلى نسبة انتشار للفيروس كانت بين الاباء بالنسبة للأقارب بنسبة 40,0 **%**. لوم تظهر هذه الدراسة أي اصابة لدا الامهات والزوجات. ولما تسجل ايضا علاقة ذات دلالة بين انتشار الفيروس وعوامل الاختطار الداخلية والخارجية. يستنتج من هذه الدراسة أن انتشار فيروس التهاب الكبد B مرتفع نوعا ما في اليمن ونسبة الإصابة بين الكبار كانت أكثر في الفئة العمرية 30-39 سنة، وعند المتزوجون وان الاباء هم الاكثر اصابة من بقية الاقارب وان الاصابة داخل العائلات تكون اعلى عندما يكون الشخص المصاب انثى، بينما لم تظهر أي اصابات لدا الامهات والزوجات وأولئك الذين اخذوا لقاح ضد الفيروس. ولا توجد ايضا علاقة ذات دلالة بين انتشار الفيروس وعوامل الاختطار الداخلية والخارجية.

الكلمات المفتاحية: بين العائلات، فيروس التهاب الكبد **B**، انتقال، عدن.

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