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INCREASING BURDEN OF HEPATITIS C IN POPULATION OF DISTRICT PESHAWAR, KHYBER PAKHTUNKHWA PROVINCE OF PAKISTAN

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Abstract:

Hepatitis C virus (HCV) is a major cause of persistent liver disease and progresses toward liver cirrhosis, hence a major causeof Hepatocellular Carcinoma (HCC).About 3% of the population is infected by this virus all overthe world.This study was conducted to determine anti-HCV prevalence (based on Immune Chromatography Technique) in suspected patients admitted at Khyber Teaching Hospital (KTH) Peshawar Khyber PakhtunKhwa Pakistan. Data of total 1772 subjects from March 2018 to February 2019 admitted at pathology lab Khyber teaching Hospital (KTH) Peshawar were collected. All samples have been examined for anti-HCV antibodies using ICT. Evaluation of all 1862 suspected patients indicated that 56 individuals (3.16%) had anti-HCV antibodies of their sera. According to our observations, the prevalence of HCV infection is even lower (3.16%) than the common HCV prevalence recorded inside the case of all previous studies in our subject areas. The lowering movement of HCV infection suggests the development in fitness care facilities and recognition among the not unusual population over the last few years.

Keywords: *Hepatitis, Infection, Peshawar, ICT.*

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INTRODUCTION:

Along with other viral infections, Hepatitis C which is caused by hepatitis C virus (HCV) emerged as a serious global health issue. Its prevalence has already increased to frightening proportion and it is expected to increase in near future. About 170 million people worldwide have been infected by hepatitis C virus *(Choo, Q.L., et al 1989).*HCV belongs to the family Flaviviridae and is a single strandedRNA virus *(Muhammad, N. and Jan, M.A., 2005).*HCV causes liver diseases which ends up being chronic in most cases and causes complicated disorders*(Colombo, M., et al 2003).* Chronic HCV leads to complicated liver disorder finishing in liver cirrhosis and hepatocellular carcinoma *(Simmonds P 2004).* HCV has turn out to be a primary cause of liver cancer and one of the supreme common symptoms of liver transplantation *(Pawlotsky, J. M. 2003).* HCV is transmitted through several ways likeblood transfusions, intravenous drug use, the use of unsanitary procedures and equipment in dental surgery and barbershops. One of the common ways of HCV transmission in developing countries is the use of unscreened blood during blood transfusions, hence HCV remains one of thecommon infectionsspread through contamination of blood (blood borne) and other body fluids *(Colombo, M., et al 2003).* HCV is identified by way of detection of anti- HCV antibodies which are made by immune system in response to attack with the aid of hepatitis C virus. One such common test used is ELISA.An estimated 130–170 million world's population is chronically inflamed with hepatitis C, at the same time highest prevalence is changed into determined in Asia and Africa *(Zaman, N., et al 2015, Qureshi, H., et al 2010*). The distribution sample of hepatitis C is inconsistent from 4% to 12% in Asia-pacific areas *(Afzal, M. S., et al 2014).* In Pakistan 10 million people havebeen infectedby HCV and its prevalence ratio is 4% *(Waheed, Y., et al 2009,Ruan, Y., et al 2007).* In China, the prevalence rate ranged from 1% to 31.86% depends on its areas of lowest and maximum endemic cities even as the prevalence ratio is 1.8% in Saudi Arabia*(Al-Tawfiq, J. A., & Anani, A. 2008.,Lanini, S., et al 2016).* World Health Organization (WHO) recognized the primary Global Health Sector Strategy (GHSS) 2016–2021 for the prevention and control of viral hepatitis. GHSS would try to prevent the anticipated 7.1 million HCV related deaths for the duration of 2015–2030 and could attain the fitness targets of the 2030 agenda for sustainable development to combat viral hepatitis *(Zaman, N., et al 2015).* In previous studies, the prevalence of HCV antibodies has been estimated as 2.2-14% respectively in various region of Pakistan (*Afzal, M. S., et al 2014).* The assessment of actual prevalence is needed on urgent basis in order to adopt preventive strategies for these infections. As Pakistan is a developing country, people having low literacy rate and least information concerning diagnostic and treatment, consequently HCV has turned into an economic burden in Pakistan and particularly in KPK*(Ahmad et al., 2012).* Therefore, this study was aimed to estimate the prevalence of HCV antibodies in population of district Peshawar of KPK, Pakistan.

MATERIALS AND METHODS:

Study site:

All the patients in this study belong to district Peshawar which is the capital of KPK. The total population of Peshawar is 12, 18,773million according to 2017 census. The study site is an agricultural zone, where the climate is tropical. The average temperature ranges from 20 to 35 celsius and the relative humidity is quite high while most humidity was recorded in December which is 71%. The average rainfall in Peshawar is 384mm recorded by Google.

Data and sample collection:

The samples were collected from Pathology lab of Khyber teaching hospital Peshawar from the volunteer sufferers having preliminary signs or recommended by medical doctors. A total of 1772 HCV suspected subjects were examined.

Blood analysis method:

The samples from all the patients were analyzed via ICT (Immunochromatographic test) kits. The positive patients were in addition subjected to further verifications and test.

Immuno–Chromatographic Test (ICT):

ICT is an important technique used for the detection of HCVAg indirectly from serum. All these samples were screen through Ab rapid test cassette kit manufactured in the United State of America (USA).

RESULTS:

In the current study, total 1772patients were screened for anti-HCV antibodies. Among the total, 1444 were recorded as male suspected while 328 were females of different age and groups ranging from 1 year to above 60 years (Table1). Out of total 1772patients, about 56(3.007%) were diagnosed as positive for HCV antibodies (Table 1). About 43 were male positive patients and 13 were female positive patients. The total data were divided into four groups. In Group A, total suspected patients were 321, in which 9(2.95%) were screened positive. In group B number of patients were 513, out of which 15(2.92%) were positive. In group C, total 611 patients were screened out of which

23(3.76%) were positive. In group D number of patients were 327, out of which 9(2.75%) were positive.

Table 1. Age and gender wise prevalence of HCV

Age Wise	Total Patients	Male Patients	Male Positive Patients	Female Patients	Female Positive Patients	%age of Total Positive Patients
Group A 1-15	321	231	7	90	2	2.95%
Group B 16-40	513	408	12	105	3	2.92%
Group C 41-60	611	517	19	94	4	3.76%
Group D Above 60	327	288	5	39	4	2.75%
Total	1772	1444	43	328	13	3.16%

DISCUSSION:

Several viral out breaks have been reported from various regions of Pakistan *(Abdullah et al., 2019, Ali, S., et al., 2018,* Anwar, F., *et al., 2018, Anwar et al., 2019).*Among them, Hepatitis c is extremely attentive problem for the public health and Pakistan is the second highest country suffering from HCV in the world after Egypt. Due to poor health care facilities, unhygienic conditions and lack of awareness in most parts of the country, the ratio of HCVmorbidity and mortality is higher. In Khyber Pakhtunkhwa, HCV has become an economic burden over population. Earlier studies done in Pakistan used different methods of selection of subjects supported the presences of high HCV percentage in Pakistan ranging from 3.3% to 5.3% (Khan et al., 2018, Anwar et al., 2019). All the OPD patient blood and serums reported to the Khyber teaching hospital Peshawar (KTH) Khyber Pakhtunkhwa Pakistan from March 2018 to February 2019 were analyzed. The purpose of the present study was to find the prevalence of HCV infection in the OPD patient in District Peshawar Pakistan. The screening of the patient blood through ICT, ELISA technique revealed that 3.16% of the OPD patient were positive for anti-HCV antibodies. Earlier studies done in Pakistan supported the presence of high HCV prevalence ranged from 3.3 to 5.3% *(Qureshi, H., et al 2010, Khan, M., et al. 2018).* In this study we analyzed all the HCV patients' blood samples through ICT, while ELISA technique confirmed that 3.16% of the total sample collected had anti-HCV antibodies. This study confirmed that the prevalence of HCV is different in different areas of the country and is less than our prevalence ratio*(Anwar, F., et al., 2018 , Shah, I. A., et al 2018).*This might be due to difference in subject involvement, season of study, area of selection and technique used. In comparison to all of the above prevalence conducted in different part of KPK, the prevalence is in increasing order. This might be happened due to the lack of health care facilities, unawareness of the HCV infection or due to drinking and eating of unhygienic water and food. Similarly, the use of contaminated thing like syringe and other equipment are expected for the spreading of HCV.

CONCLUSION:

In conclusion, the blood transfusion, unawareness of the HCV infection, due to drinking and eating of unhygienic water are the main reasons for HCV prevalence. The public health department should focus on the control of HCV via awareness of the public and providing better health facilities.

REFERENCES:

1. ABDULLAH, SHER ALI, MUHAMMAD SALMAN, MISBAHUD DIN, KACHKOL KHAN, MUNIB AHMAD, FAISAL HAYAT KHAN, and MUHAMMAD ARIF. "Dengue Outbreaks in Khyber Pakhtunkhwa (KPK), Pakistan in 2017: An Integrated Disease Surveillance and Response System (IDSRS)-Based Report." *Polish Journal of Microbiology* 68, no. 1 (2019): 115-119.
2. Afzal, M. S., Khan, M. Y., Ammar, M., & Anjum, S. (2014). Diagnostically untypable hepatitis C virus variants: it is time to resolve the problem. *World Journal of Gastroenterology: WJG*, *20*(46), 17690.
3. Ali, M., Idrees, M., Ali, L., Hussain, A., Rehman, I. U., Saleem, S., ... & Butt, S. (2011). Hepatitis B virus in Pakistan: a systematic review of

prevalence, risk factors, awareness status and genotypes. *Virology journal*, *8*(1), 102.
4. Al-Tawfiq, J. A., & Anani, A. (2008). Profile of viral hepatitis A, B, and C in a Saudi Arabian hospital. *Medical Science Monitor*, *14*(1), CR52-CR56.
5. Anwar, F., Zeeshan, M., Haq, I U., Allah, N., Ullah, H., Din, JU., Iftikhar Ali Shah., Muhmmad & Ahmad., W. (2018). Prevalence rate of hepatitis B and hepatitis C virus among common gender in district Charsadda Khyber Pakhtunkhwa Pakistan. Int. J. Biosci. 13(5), 221-229, November 2018.
6. Anwar, F., Ahmad, S., Haroon, M., Haq, I. U., Khan, H. U., Khan, J., ... & Shah, I. A. (2019). Dengue virus epidemics: A recent report of 2017 from district Mardan, Khyber Pakhtunkhwa province, Pakistan.
7. Choo, Q. L., Kuo, G., Weiner, A. J., Overby, L. R., Bradley, D. W., & Houghton, M. (1989). Isolation of a cDNA clone derived from a blood-borne non-A, non-B viral hepatitis genome. *Science*, *244*(4902), 359-362.
8. Colombo, M., Rumi, M.G. and Ninno, E.D., 2003. Treatment of chronic hepatitis C in Europe. Journal of Hepato-Biliary- Pancreatic Sciences, 10(2), pp.168-171
9. Lanini, S., Easterbrook, P. J., Zumla, A., & Ippolito, G. (2016). Hepatitis C: global epidemiology and strategies for control. *Clinical Microbiology and Infection*, *22*(10), 833-838.
10. Anwar, F., Shah, I. A., & Zeeshan, M. (2018). Prevalence of Syphilis in Blood Donors in District Mardan Khyber Pakhtunkhwa Pakistan. *International Journal of Contemporary Research and Review*, *9*(07), 20257-20261.
11. Muhammad, N., & Jan, M. A. (2005). Frequency of hepatitis" C" in Buner, NWFP. *Journal of the College of Physicians and Surgeons--Pakistan: JCPSP*, *15*(1), 11-14.
12. Mujeeb, S. A., & Pearce, M. S. (2008). Temporal trends in hepatitis B and C infection in family blood donors from interior Sindh, Pakistan. *BMC Infectious Diseases*, *8*(1), 43.
13. Pawlotsky, J. M. (2003). Mechanisms of antiviral treatment efficacy and failure in chronic hepatitis C. *Antiviral research*, *59*(1), 1-11.
14. Perz, J. F., Armstrong, G. L., Farrington, L. A., Hutin, Y. J., & Bell, B. P. (2006). The contributions of hepatitis B virus and hepatitis C virus infections to cirrhosis and primary liver cancer worldwide. *Journal of hepatology*, *45*(4), 529-538.
15. Qureshi, H., Bile, K. M., Jooma, R., Alam, S. E., & Afrid, H. U. R. (2010). Prevalence of hepatitis B and C viral infections in Pakistan: findings of a national survey appealing for effective prevention and control measures.
16. Ruan, Y., Qin, G., Yin, L., Chen, K., Qian, H. Z., Hao, C., & Shao, Y. (2007). Incidence of HIV, hepatitis C and hepatitis B viruses among injection drug users in southwestern China: a 3-year follow-up study. *Aids*, *21*, S39-S46.
17. Ali, S., Mahmood, N., Afridi, J Z., Ahmad, B., Abdullah,Din, M., Ahmad, M., Khan, F H. &Jalil, F. (2018). Epidemics of dengue virus in the recent outbreak in 2017, in District Mardan, Khyber-Pakhtunkhwa province of Pakistan. Int. J. Biosci. 12(3), 280-284.
18. Simmonds, P. (2004). Genetic diversity and evolution of hepatitis C virus–15 years on. *Journal of General Virology*, *85*(11), 3173-3188.
19. Tunio, S. A., Bano, S., Laghari, Z. A., Ali, W., Shamim, H., & Afreen, U. (2013). Seroprevalence of Hepatitis B and Hepatitis C among blood donors in Hyderabad, Pakistan. *Gomal Journal of Medical Sciences*, *11*(2).
20. Waheed, Y., Shafi, T., Safi, S. Z., & Qadri, I. (2009). Hepatitis C virus in Pakistan: a systematic review of prevalence, genotypes and risk factors. *World journal of gastroenterology: WJG*, *15*(45), 5647.
21. Zaman, N., Asad, M. J., Raza, A., Raja, G. K., Akhter, S., Mahmood, M., & Mahmood, R. T. (2015). Detection of HCV RNA and NS5A protein in peripheral blood mononuclear cells after sustained Virological response may cause viral relapse. *Pakistan Journal of Zoology*, *47*(4).
22. Shah, I. A., Anwar, F., Haq, I. U., Anwar, Y., Aizaz, M., & Ullah, N. (2018). HBV Burden on Population, a Comparative Study between Two Districts Mardan and Charsadda of KPK, Pakistan. *International Journal of Contemporary Research and Review*, *9*(09), 20269-20274.