ORIGINAL ARTICLE

The Use of Modified Delphi Approach about Hepatitis B and C Transmission and Level of Awareness in Community Settings

HAFIZ MUHAMMAD HAMZA ARSHAD[1], ASIF SALEEM[2], SAYEDA SOBIA QASIM[3], *WASEEM HAIDER[4], SAYYEDA IFRAH ALI[5], SHAHLA RAZA[6]*

ABSTRACT

Aim: To establish consensus about routes of transmission of hepatitis B and C and to assess awareness in community

Methodology: A three round Modified Delphi study via questionnaires was conducted in a panel of experts consisting of 80 doctors of medical wards of Mayo Hospital, Lahore from March to September 2017 who were selected through convenient sampling.

Results: The response rate for first round was 100% (n=80) while of second and third round was 87.5% (n=70). The experts agreed on ten possible routes of transmission of both Hepatitis B and C. These include surgical and dental procedures, dialysis, ear/nose piercing and tattooing, sharing syringes and razors, blood transfusions, sexual contact, organ transplant, sharing nail-cutters, colonoscopy. Two routes of transmission were specified by experts for only Hepatitis B which include child-birth and vertical transmission. Regarding awareness about hepatitis B and C in public, results showed that majority of the patients were aware that these are diseases of liver, about their treatment, how it is spread whereas a few knew about their symptoms and causes respectively. This study finalized twelve routes of transmission of Hepatitis B and C and identified low public awareness about this disease.

Conclusion: As Mayo Hospital is a major hospital of Punjab and some of the best doctors are available here, the results of this study will definitely prove useful in preventing spread of Hepatitis B and C and lowering its prevalence.

Keywords: Modified Delphi Technique, Hepatitis B, Hepatitis C, Consensus, Panel of experts, Awareness,

INTRODUCTION

Hepatitis is characterized by the inflammation of liver and is the foremost public health problem around the world using major portion of health resources. The increasing prevalence is the constant threat to our community as it is the important cause of the liver cirrhosis and hepatocellular carcinoma resulting in significant morbidity and mortality.[1] A research revealed that HCV hepatitis itself may reduce health related quality of life (HRQOL) in the absence of complications of hepatitis[2]. An article on serologic testing of patients of hepatitis reveals that more than 2 billion people are infected with hepatitis HBV and about 200 million with HCV worldwide in general population[3]. A study in Pakistan estimated that 7 to 9 million people are living with HBV hepatitis with approximate carrier state of 3-5% and 10 million are living with HCV hepatitis.[4] Research on the global burden of disease calculated mortality 1.45 million and morbidity in terms of DALYs from 31.7 to 42.5 million till 2013[5].

In Pakistan a research about different routes of transmission is done about asymptomatic spread of chronic infection which comes out to be the major dilemma. It was concluded that non-implementation of international standards on blood transfusion, perinatal transmission intranasal cocaine use, shared shaving equipment, IV drug abuse, tattoos, sexual activity, needle stick injuries, body piercing, dialysis, hemophilia and transplants are major risk factors for hepatitis[4].

Hepatitis B and C are spreading like epidemics in Pakistan. The hidden portion of iceberg is huge because of undiagnosed patients and carriers.[6] Study about awareness showed that most of health professional and health students have adequate knowledge about viral hepatitis. However, general population that includes accountants, bankers and teachers have poor knowledge with considerable gaps that needs to be filled.[7] Modified Delphi approach is conducted with participants who are experts in their fields[8]. It has been proven very useful in investigations about many health related problems such has diabetics mellitus and semantic dementia.[9] This study is going to apply the same approach regarding modes of transmission of hepatitis B and C and awareness in community about these lethal diseases.

MATERIALS AND METHODS

This cross sectional study was carried out at Mayo Hospital, Lahore from March 2017 to September 2017. The modified Delphi method was used in this study to reach a consensus on possible routes of transmission of hepatitis B and C and to assess awareness in community. This is a methodology to obtain consensus opinions from experts on a given topic using questionnaires in a multi-stage process.[10] Two or three rounds are frequently used in it.[11] The panel was selected from the four medicine wards of the hospital. Selection of the doctors from all four wards was necessary for good quality data collection and to improve accuracy of result. At least two years of experience in medicine, willing to participate and have sufficient time to participate in this study were included.

[1-3,5,6]Final Year MBBS Student,

[4]Health Educator, Department of Community Medicine, King Edward Medical University, Lahore

Correspondence to Dr. Waseem Haider Email: waseemhaider033@gmail.com

Participants who were less than two years of experience in medicine and too busy were excluded.

The questionnaire of round 1 consisted of 17 open-ended questions. This questionnaire was presented to the expert panel to collect their opinions and ideas about the routes of transmission and awareness in public about Hepatitis B and C. They were encouraged to give free opinion on each question and/or to propose questions considered as important.

The questionnaire of round 2 was developed keeping in mind the replies in round 1. It consisted of two parts. The first part consisted of twenty five binary questions about possible routes of transmission of hepatitis B and C. The second part consisted of eleven statements which were scored on ten-point Likert scale by panel of experts to assess the awareness about Hepatitis B and C in community. On this scale 1 means 10% of the patients and 10 means 100% of the patients. For binary questions, consensus was defined as greater than 75% agreement of expert panel either in acceptance or rejection of a route of transmission. For assessing awareness of public, mean and standard deviation of all the responses were calculated for each statement in second part of round two questionnaire.

The questionnaire of round three consisted of only those four routes of transmission about which consensus failed to develop at the end of round two. Results of round 2 and individual responses of each doctor about these four routes of transmission of Hepatitis B and C were mentioned on it. It was again distributed among all the selected doctors to give them another opportunity to either change or explain their previous reply. After data collection it was analyzed using SPSS 21.

RESULTS

Round One: In the first round out of the 80 doctors who agreed to participate, 56 were male and 24 were female. 24 were from North Medicine Ward, 16 from West Medicine Ward and 20 each from East and South Medicine Ward. The filled questionnaires of round one were analyzed to collect all the ideas and opinions about hepatitis B and C proposed by experts. These helped to design questionnaire in round 2.

Round Two: I the second round out of the 80 doctors previously selected, 70 were available for round two. Among them 51 were male and 19 were female. 24 doctors were from North Medicine Ward, 16 from South Medicine Ward, 18 from East Medicine Ward, and 12 from West Medicine Ward. 10 doctors refused to take part in further rounds due to their busy schedule.

Routes of Transmission: Consensus was previously defined as greater than 75% agreement in the favor of either yes or no. At the end of round two, panel of experts reached consensus on 21 out of 25 questions in the round two questionnaires.

Analysis of the data collected in round two showed that experts were agreed on ten possible routes of transmission of both Hepatitis B and C. These include surgical and dental procedures (100% agreement), dialysis (98.6% agreement), ear/nose piercing and tattooing (98.6% agreement), sharing syringes and razors (98.6% agreement), blood transfusions (97.1% agreement), sexual contact (97.1% agreement), organ transplant (97.1% agreement), sharing nail-cutters (88.6% agreement) and colonoscopy (90% agreement).

Two routes of transmission were specified by experts for only Hepatitis B. These are during child-birth (97.1% agreement) and vertical transmission (92.9% agreement).

Hepatitis B and C cannot spread through these routes according to experts: Breastfeeding (81.4% agreement), shaking hands and hugging (98.6% agreement), coughing and sneezing (92.9% agreement), sharing utensils (87.1% agreement), feco-oral (85.7% agreement), mosquito bites (95.7% agreement), fomites (91.4% agreement), sharing soaps (97.1% agreement) and from food prepared by infected person (97.1% agreement).

Four questions about routes of transmission of Hepatitis B and C did not reach consensus at the end of round 2. These were sharing tooth-brushes (58.6% yes, 41.2% no), mouth to mouth resuscitation or kissing (40% yes, 60% no), from sero-negative subjects (24.3% yes, 74.3% no) and sharing combs (28.6% yes, 71.4% no) (Table 1).

Table 1: Summary of responses about routes of transmission of Hepatitis B and C in round two (n=70)

Route of Transmission	Replies			
	Yes		No	
	No.	%	No.	%
Breast feeding	13	18.6	57	81.4
Surgical dental procedures	70	100.0	-	-
Shaking hands hugging	1	1.4	69	98.6
Dialysis	69	98.6	1	1.4
Blood transfusion	68	97.1	2	2.9
Coughing sneezing	5	7.1	65	92.9
Sharing tooth brushes	41	58.6	29	41.4
Mouth to mouth Resuscitation kissing	28	40.0	42	60.0
Sex	68	97.1	2	2.9
During childbirth	68	97.1	2	2.9
Ear nose piercing tattooing	69	98.6	1	1.4
Sharing utensils	9	12.9	61	87.1
Feco oral	10	14.3	60	85.7
Organ transplant	68	97.1	2	2.9
Vertical transmission	65	92.9	5	7.1
Colonoscopy	63	90.0	7	10.0
Seronegative subjects	17	24.3	53	75.7
Mosquito bites	3	4.3	67	95.7
Fomites	6	8.6	64	91.4
Sharing combs	20	28.6	50	71.4
Sharing syringes	69	98.6	1	1.4
Sharing razors	69	98.6	1	1.4
Sharing nail cutters	62	88.6	8	11.4
Sharing soaps	2	2.9	68	97.1
Food prepared by infected persons	2	2.9	68	97.1

Regarding awareness about hepatitis B and C in public, results showed that 74% patients were aware that these are diseases of liver, 64% patients were aware that their treatment is available, 61% patients had knowledge that these spread through reuse of syringes, 58% patients were aware that these are contagious diseases, 55% knew that these are viral diseases and vaccine is available, and 37% and 25 % patients knew about their symptoms and

causes respectively. The results of round two showed that people have good awareness that hepatitis B and C is a liver disease, viral disease, spread through reuse of syringes, blood test is its only confirmatory test, and its treatment and vaccine is available. They had very poor knowledge about its symptoms and causes (Table 2). The analysis of round three showed that out of the four questions in round 3, two reached the defined level of agreement (consensus). The panel of experts agreed that hepatitis B and/or C cannot spread via sharing combs (80% agreement) and from sero-negative subjects (92.9% agreement). Two routes of transmission of Hepatitis B and/or C did not reach consensus either in yes or no even after round three. These are sharing toothbrushes (73% yes, 27% no) and mouth to mouth resuscitation or kissing (36% yes, 64.3% no) [Table 3].

Table 2: Awareness among patients presenting in medical wards of Mayo Hospital in percentage about different statements regarding Hepatitis B and C as proposed by expert panel (n=70)

Statement to assess about awareness in patients	Mean ± SD
Hepatitis is a contagious disease	58.71±26.20
Hepatitis is a viral disease	54.57±30.24
Hepatitis is a disease of liver	74.57±23.81
Symptoms of hepatitis	37.57±24.52
Causes of hepatitis	29.00±20.58
Hepatitis can spread through reuse of syringes	61.00±25.60
Hepatitis cannot spread through feco-orally	28.28±21.60
Patients should be investigated about hepatitis B and C before surgery	52.42±26.23
Blood test is the only way to confirm hepatitis B or C in a patient	55.00±24.00
Treatment of hepatitis is available	64.00±22.99
Vaccination of hepatitis is available	55.00±24.36

Table 3: Comparison of results of round two and three for those questions which did not reach consensus in round two

Routes of Transmission	Replies			
	Round 2		Round 3	
	Yes	No	Yes	No
Sharing toothbrushes	58.8	41.2	72.9	27.1
Mouth to mouth resuscitation of kissing	40.0	60.0	35.7	64.3
From seronegative subjects	24.3	74.3	7.1	92.9
Sharing combs	28.6	71.4	20.0	80.0

DISCUSSION

Hepatitis is an inflammation of liver which can have serious complications like liver cirrhosis, hepatocellular carcinoma and death. Hepatitis B and C are very common infections in Pakistan. A weighted average of Hepatitis B antigen prevalence among healthy adults was 2.4% and for Hepatitis C antibody was 3%. Rates in the high risk subgroups were far higher[12]. Prevention is the best strategy to deal with both Hepatitis B and C. Knowing its routes of transmission and current level of awareness about it in public are vital to prevent its spread.

To differentiate true routes of transmission of Hepatitis B and C from myths, we used modified Delphi technique. The panel of experts agreed that Hepatitis B and C spread through surgical and dental procedures, dialysis, ear/nose piercing and tattooing, sharing syringes and razors, blood transfusions, sexual contact, organ transplantation, sharing nail-cutters and colonoscopy. Two routes of transmission were specified by experts for only Hepatitis B. These are during child-birth and vertical transmission. They also agreed that Hepatitis B and C cannot spread through these routes: Breastfeeding, shaking hands and hugging, coughing and sneezing, sharing utensils, feco-oral, mosquito bites, fomites, sharing soaps and from food prepared by infected persons. These results helped to identify widely spread false beliefs about Hepatitis B and C transmission.

The results of present study showed that the knowledge of public about Hepatitis B and C is lacking. More than 60% patients knew that Hepatitis B and C are viral diseases, primarily affect the liver and can be transmitted by reuse of syringes and unsterilized surgical instruments. More than 50% patients also knew that treatment and vaccination is available for Hepatitis B and C. But less than 30% knew symptoms, causes and risk factors for Hepatitis B and C. This suggests that attention should be given to improve health education about routes of transmission, symptoms and causes of Hepatitis B and C. They should be informed about transmission through unsafe sex, tattooing, ear and nose piercing.

Family physicians should play their effective role in counselling of their patients. They should give more time to make their patients aware of risk factors and prevention methods of these diseases. Information should be given to public through electronic, print and social media. The government and health departments should make necessary policies to make sure that health education should be carried out at grass root level without any discrimination.

One of the most important strength of modified Delphi technique is panel of experts and their opinions on the given topic[13]. The response rate of this study was good, namely 100 percent in first round and 87.5% in second and third rounds. This was a pleasing result as low response rate has always been a limitation in modified Delphi method. This shows interest and active participation by experts in our study. Using a large sample of 80 doctors ensured that response of one individual could not dominate the final result.

Although the modified Delphi technique is well-accepted method, the results are still biased to a little extent because questions in the questionnaire are limited and designed by researchers[14]. To counter this limitation, the researchers requested all the participating doctors to give suggestions and comments wherever needed in round one which were kept in mind while designing questionnaire for round two. Moreover, there is no definite definition of consensus for modified Delphi studies. Different studies have used different definitions[15].

CONCLUSION

The present study was conducted to establish consensus about routes of transmission of Hepatitis B and C and to assess awareness in community by using Modified Delphi Approach. The study finalized twelve routes of transmission of Hepatitis B and C out of 25 possible routes, and identified low public awareness about this disease. Some

of these modes are caused owing to solely negligence and carelessness of the medical care providers. These include transmission during surgical and dental procedures, dialysis, blood transfusions organ transplant and colonoscopy. Other routes of transmissions of Hepatitis B and C are the result of negligence and carelessness of the people like ear/nose piercing and tattooing, sharing syringes and razors, sexual contact, and sharing nail-cutters. The result of the present study point towards the need of collective efforts from not only the medical care providers but also from the general public for the prevention and transmission of Hepatitis B and C.

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