

## Are Really Family Physicians Aware of Hepatitis B?

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### Abstract

**Introduction:** This study aimed to determine the level of knowledge of family physicians regarding hepatitis B infection, transmission ways, risk groups, clinical course, and protection methods.

**Methods:** This study is held on 236 family physicians at Adiyaman, Mersin, Adana and Kahramanmaraş. A questionnaire was held before the awareness raising seminars organized by provincial Health Directorates. Data was analyzed by SPSS 16.0 and descriptive statistics and chi-square test were used.

**Results:** In general, 54.7% of the doctors enrolled in this study gave correct answers. Twenty three percent of physicians were not aware of HBsAg in diagnosis of hepatitis B virus (HBV), 14.8% did not know anti-HBs as indicating immunity against HBV. Though 94.4% of the family physicians administered routine hepatitis B vaccination, 62.3% of them were not informed about the lowest level of anti-HBs titer (10 IU/ml) providing immunity against HBV.

**Conclusion:** This study showed that the level of knowledge of family physicians in HBV infections is inadequate and the family physicians should be trained about contagious diseases.

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**Keywords:** Hepatitis B, Hepatitis B knowledge, Primary care physicians, Family physicians

### Introduction

Hepatitis B is a universal public health problem which is seen in areas where most population has high infections.<sup>1</sup> Hepatitis B is a viral disease which infects about 240 million people in the world chronically.<sup>2</sup> It is estimated that approximately 3.5 million people in Turkey suffer from Hepatitis B.<sup>3</sup>

Physicians must have adequate information about viral hepatitis in order to protect themselves, to give appropriate and effective care and to inform people they serve. This study aims to determine information levels of primary care physicians working in 4 cities (Adiyaman, Mersin, Adana, and Kahramanmaras) about hepatitis B infections, ways of transmission, risk groups, clinical pictures, and methods of protection.

## **Methods**

This study involved 236 physicians working at primary level in 4 cities: Adiyaman, Mersin, Adana, and Kahramanmaras. A questionnaire consisting of 72 questions about general knowledge, transmission ways, diagnostic methods, and protection ways was prepared after literature review. Questionnaires were filled by physicians before awareness raising seminars held by Provincial Health Directorates. Informed consent was taken from participants involved in this study. Data were recorded to SPSS 16.0 package program. Descriptive statistics, and chi-square test were used for data analysis.

## **Results**

Demographic findings of the physicians involved in this study are given in Table 1. In general, 54.7% of physicians gave correct answers to questionnaire questions. Correct answer rate had a positive correlation with working years but didn't have a correlation with location of duty. Rate of correct answer according to year of graduation, and city and location of duty are given in Table 2.

From the physicians involved in this study, 84.3% were detected not to perform hepatitis B screening for their patients. Reasons for not screening their patients were absence of a laboratory at their workplace in 28.1%, quota for laboratory assessments in 22.4%, and ignorance in 10.4%. 94.9% of these physicians were vaccinated for hepatitis B.

Among the physicians who completed the questionnaires 69.8% were detected to get information about hepatitis B disease in last two years. Sources of information were books in 25.3%, seminars in 19%, medical journals in 17.5%, web in 13.8%, and a health professional in 12.3%. Some physicians got information from a friend, TV or newspapers. 74.5% of the subjects were vaccinated and 85% had their family vaccinated.

Among the physicians participated in this study 5 (2.1%) had HBs-Ag positivity, 8.5% had HBs-Ag positivity in a first degree relative, 5.9% had HBs-Ag positivity in a second degree relative and 25.8% had HBs-Ag positivity in friends. HBs-Ag positivity in study subjects or their relatives didn't change level of knowledge ( $p < 0.005$ ). Physicians' answers to questions designed to assess their knowledge about hepatitis B disease and HBV are given in Table 3. Physicians' answers to questions designed to assess their knowledge about transmission ways of hepatitis B are given in Table 4. Physicians' answers to questions designed to assess their knowledge about protection methods are given in Table 5.

Physicians' answers revealed that 23% didn't know HBs-Ag in diagnosis of hepatitis B virus, 14.8% didn't know that Anti-HBs shows immunity against this virus, and 46.8% didn't know that there isn't a cure for this disease. More importantly, although 94.4% of these physicians make hepatitis B vaccinations, 62.3% didn't know that Anti-HBs titer that shows immunity is 10 IU/ml. In addition, it was interesting that their correct answer rate for chronicity of hepatitis B infection in adults and new-borns was very low. Physicians' answers to questions designed to assess their knowledge about risk groups are given in Table 6.

Among all subjects, 9.6% gave correct answers to all questions about clinical pictures caused by hepatitis B infection. 43.9% of the physicians didn't know asymptomatic

form, 38.2% didn't know fulminant form, and 43.5% didn't know that this disease causes hepatic cancer which is the most important consequence of chronic hepatitis B infection.

Correct answer to the question that assess inactive carrier state of hepatitis B infection ('These patients have low levels of hepatic damage') was given by 52.6% of the subjects. It was also interesting that 11.2% of the physicians responded as 'Regular follow-up visits are not necessary for carriers'.

To assess knowledge level of the physicians about parameters used for advanced liver damage only 1.4% gave the correct combination consisting of four items: albumin, thrombocyte number, bilirubin and alpha feto protein levels.

Assessment of knowledge level of physicians about advices to be given to the patients with Hepatitis B infection revealed that only 4 physicians marked all 6 correct answers: 'Don't drink alcohol', 'Households should be screened', 'Family members who don't live in the same house should be screened', 'Don't gain weight', 'Inform your hairdresser and dentist about your HBV status before the procedure', and 'Inform your doctor about your HBV status'. Wrong answers like 'Quit smoking', 'Prefer caesarean section to normal delivery' and 'Avoid fatty meals' were marked by 52.2%, 19.2%, and 57.6% of the physicians, respectively. In addition, it was interesting that 24.7% didn't know that 'Relatives of hepatitis B patients should be immunized' and 40.1% didn't know that 'Households of hepatitis B patients should be screened' which are two basic information about hepatitis B.

## **Discussion**

As hepatitis B infection is a preventable disease by vaccination, the most important step in prevention is education. All healthcare professionals should be informed about transmission of HBV infection and protection from this. In our study we detected that 69.8% of the physicians got information about hepatitis B disease. Sources of information were books (25.3%), seminars (19%), medical journals (17.5%), web (13.8%), other healthcare professionals (12.3%) and rarely friends, TV, and newspapers. Goktalay et al. found that among students who stated to have information about hepatitis B infection, 62.1% got this information from the last school they have graduated. Vaccination rate of these students was very high.<sup>4</sup> Gucuk et al. found that rate of physicians educated about protection methods against transmissible diseases was lower than rates in nurses and other staff. Most of the physicians didn't want to be educated.<sup>5</sup> Uzun et al. found that 128 of 218 (59%) physicians working in a medical school hospital wanted to get information about hepatitis B, and rate of physicians wanting to be educated was higher among physicians with a moderate level of knowledge about HBV.<sup>6</sup>

In 1987, Centers for Disease Control (CDC) recommended that all healthcare professionals, regardless of their workplace should be vaccinated against hepatitis B. This vaccination provides 90% protection.<sup>7</sup> Mandatory application of this vaccine to healthcare personnel, easy and free availability can increase vaccination rate. In our sample, 74.5% of the physicians were vaccinated and 85% got their families vaccinated. Uzun et al. found in a sample of residents in medical schools that 88.7% were vaccinated against hepatitis B and 81.7% had full dose vaccination against hepatitis B.<sup>3</sup> Tekin et al. found that 84% of the physicians were vaccinated against hepatitis B and 16% were naturally immune.<sup>8</sup> In Nigeria 40.3% and Karachi 55% of health professionals vaccinated against Hepatitis B.<sup>9,10</sup>

Our study revealed that 41.9% of the subjects didn't know that this disease doesn't have cure, 42.5% didn't know that hepatitis B carriers transmit the disease, 43.4% didn't know that hepatitis B virus is a DNA virus, 22.5% didn't know that hepatitis B and hepatitis C

viruses are different and 73.1% didn't know that hepatitis B virus cause pancreas cancer. Cetin et al. found that 86.7% of physicians didn't know that there is not cure for hepatitis B infection and 93.3% didn't know that the disease is contagious even in the asymptomatic period.<sup>11</sup> Tekin et al. found that 59.6% of physicians thought their knowledge level about hepatitis B were adequate. 67% of the physicians stated that there is treatment for HBV infection but its success rate is low and 21.3% stated that treatment is successful.<sup>8</sup> Insufficient general information level of physicians about viral hepatitis is believed to be the biggest problem in protection from these infections.

HBV infection can be controlled provided that transmission routes of HBV infection are prevented and protection methods are applied.<sup>12</sup> In our study questions about knowledge of physicians on transmission ways of hepatitis B revealed that 71.4% didn't know the probability of disease transmission during delivery and perinatal period; 39.9% didn't know the probability of transmission during intrauterine period; 39.8% didn't know that this disease is not transmitted by direct contact; 38.7% didn't know that hepatitis B virus is not transmitted by sharing bath or WC; 48.1% didn't know that hepatitis B virus is not transmitted by sharing utensils; 43.5% didn't know that hepatitis B virus is not transmitted by flies and bugs; 31.6% didn't know that hepatitis B virus is not transmitted by faecal-oral route; and 33.8% didn't know that HBV transmission is easier than HIV transmission. Cetin et al. found that only 15% of residents in a medical school correctly answered all questions about transmission ways of HBV infection.<sup>11</sup> Goncalvez detected that 57.6% of physicians know that HBV transmission correctly.<sup>13</sup> Only 14.1% of the 92 residents working in a medical school correctly answered the questions about transmission ways of HBV in Sacar et al. study.<sup>14</sup> Therefore CDC and World Health Organisation (WHO) recommend that all pregnant women should be evaluated regarding HBs-Ag and after delivery infants should get vaccination and hepatitis B immunoglobulin.<sup>15</sup> In our study answers of the physicians regarding protection methods against this disease revealed that 31.6% didn't know that carriers don't need to be vaccinated, 33.5% didn't know that pregnant can be vaccinated, 36.4% didn't know that a balanced diet can protect from this disease, 30.7% didn't know that sports can protect against this disease, 17% didn't know that pregnant women should be screened for hepatitis, and 14% didn't know that hepatitis B can't be understood from urine analysis. Tekin et al. found that 94.7% of physicians stated that HBs-Ag evaluation is necessary during pregnancy, 88.3% stated that vaccine and hepatitis B immunoglobulin should be immediately applied to infants born to a HBs-Ag positive mother, and 64.9% stated that hepatitis B vaccination during pregnancy is not harmful.<sup>8</sup> General practitioners have great responsibilities because they can reach large groups of people. We think that education is important to decrease hepatitis B infection which is a preventable disease. Cetinkaya et al. detected that 55.6% of physicians' always and 36.5% occasionally obey the rules to prevent HBV infection.<sup>16</sup>

We detected that 23% of the physicians didn't know HBs-Ag in hepatitis B virus diagnosis, 14.8% didn't know Anti-HBs which show immunity against this virus, and 46.8% didn't know that there is no cure for this disease. More importantly, although 94.4% of these physicians perform hepatitis B vaccinations 62.3% didn't know that Anti-HBs titre showing immunity is 10 IU/ml. Moreover it was interesting that rates of correct answers to the questions about chronicity rate of hepatitis B infection in adults and newborns were quite low. Onal et al. reported that 94.7% in their sample know that chronicity rate of hepatitis B infection acquired during adulthood is 10%, and chronicity rate is higher for infections acquired during childhood.<sup>17</sup>

Rate of physicians who gave correct answers to all of the questions about their knowledge level on risk groups for hepatitis B infection was 18.3%. It was interesting that 57.8% of the physicians didn't know that debilitated patients and patients staying at

nurseries are under risk, 38.9% didn't know that infants born to a HBs-Ag positive mother are under risk, 56.8% didn't know that police officers and ambulance staff are under risk, and 45.4% didn't know that haemodialysis patients are under risk. Goktalay et al. reported that 64.1% of their subjects reported that infants born to hepatitis B carrier mothers are under risk.<sup>4</sup>

In our study 9.6% of the physicians gave correct answers to all of the questions designed to assess their knowledge level about clinical pictures due to hepatitis B infection. It was detected that 43.9% of the physicians didn't know asymptomatic form of this disease, 38.2% didn't know fulminant form, and 43.5 didn't know that this disease leads to hepatic cancer. In addition it was interesting that some physicians marked wrong answers like hepatitis B virus causes hypertension, DM, and premature births in pregnant women. Goktalay et al. reported that 29.6% of their subjects knew that hepatitis B infection causes hepatic cancer.<sup>4</sup> Nayır et al. detected that 4.8% of the physicians in their sample didn't know asymptomatic form of the disease, 4.8% didn't know acute form, 2% didn't know chronic form, 8.5% didn't know fulminant form, 7.3% didn't know that the disease causes hepatocellular carcinoma, and 2.3% didn't know that the disease caused hepatic cirrhosis.<sup>18</sup>

## Conclusion

In conclusion, knowing the transmission ways of contagious diseases and taking necessary protection measures is important in preventive medicine because primary care physicians can reach to large number of people. Our study suggests that knowledge level of primary care physicians about HBV infection is insufficient and these physicians should be educated about contagious diseases.

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**Table 1:** Demographic features of the physicians included in this study.

|                 | Adana      | Adiyaman   | Kahramanmaraş | Mersin     | Total |
|-----------------|------------|------------|---------------|------------|-------|
| Graduation year |            |            |               |            |       |
| 2010-2006       | 0          | 12 (29.2%) | 29(70.8%)     | 0          | 41    |
| 2005-2001       | 2 (3.9%)   | 38 (74.5%) | 8 (15.7%)     | 3 (5.9%)   | 51    |
| 2000-1996       | 12 (26.1%) | 12 (26.1%) | 3 (6.5%)      | 19 (41.3%) | 46    |
| 1995-1991       | 21 (42%)   | 7 (14%)    | 1 (2%)        | 21 (42%)   | 50    |
| Before 1990     | 22 (45.3%) | 3 (6.2%)   | 0             | 23 (47.5%) | 48    |

| Sex         |            |            |            |            |     |
|-------------|------------|------------|------------|------------|-----|
| Male        | 36 (26.5%) | 61 (44.8%) | 17 (12.5%) | 22 (16.2%) | 136 |
| Female      | 21 (21%)   | 11 (11%)   | 24 (24%)   | 44 (44%)   | 100 |
| Workplace   |            |            |            |            |     |
| City center | 53 (32.7%) | 28 (17.3%) | 38 (23.5%) | 43 (26.5%) | 162 |
| Town center | 4 (8.7%)   | 22 (47.8%) | 1 (2.2%)   | 19 (41.3%) | 46  |
| Village     | 0          | 22 (78.6%) | 2 (7.1%)   | 4 (14.3%)  | 28  |

**Table 2:** Rate of correct answers according to graduation year, cities and workplaces.

|                 | Correct answers | False answers | p values |
|-----------------|-----------------|---------------|----------|
| City            |                 |               | 0.001    |
| Adana           | 64.6%           | 35.4%         |          |
| Adiyaman        | 56.4%           | 43.6%         |          |
| Mersin          | 54.8%           | 45.2%         |          |
| Kahramanmaras   | 31.0%           | 69.0%         |          |
| Graduation year |                 |               | 0.001    |
| 2010-2006       | 42.1%           | 57.9%         |          |
| 2005-2001       | 51.2%           | 48.8%         |          |
| 2000-1996       | 54.6%           | 45.4%         |          |
| 1995-1991       | 57.9%           | 42.1%         |          |
| Before 1990     | 58.3%           | 41.7%         |          |
| Workplace       |                 |               | 0.739    |
| City center     | 58.7%           | 41.3%         |          |
| Town center     | 56.2%           | 43.8%         |          |

|         |       |       |
|---------|-------|-------|
| Village | 56.9% | 43.1% |
|---------|-------|-------|

**Table 3:** Answers of physicians to questions regarding their knowledge level about hepatitis B disease and hepatitis B virus.

| Question                                 | Rate of correct answers (%) |
|--|-----------------------------|
| Hepatitis B is a contagious disease      | 97.8                        |
| It has a definite cure                   | 58.1                        |
| Inactive carriers don't transmit disease | 57.5                        |
| It is a RNA virus                        | 56.6                        |
| Hepatitis B virus cause chirrrosis       | 94.3                        |
| Hepatitis B virus cause liver cancer     | 89.9                        |
| It can evolve to Hepatitis C             | 77.5                        |
| It is a cause of swaddle jaundice        | 73.9                        |

**Table 4:** Answers of the physicians to questions designed to assess their information level about transmission ways of hepatitis B virus.

| Question  | Rate of correct answer (%) |
|---|----------------------------|
| It is transmitted by sexual relation  | 95.6                       |
| It is transmitted by blood  | 96.4                       |
| It is transmitted to an infant born to a mother with HBV infection during pregnancy and at delivery | 28.6                       |
| It has intrauterine transmission  | 60.1                       |
| It is transmitted by sharing shaving-blade, scissors, and straight razor                            | 97.3                       |
| It is transmitted by sharing manicure-pedicure sets   | 94.1                       |
| It is transmitted by respiratory route  | 91.1                       |
| It is transmitted by direct contact   | 60.2                       |
| It is transmitted by sharing bath-WC.   | 61.3                       |

|   |      |
|---|------|
| It is transmitted by sharing shaving blades                               | 95.6 |
| It is transmitted by sharing utensils                                     | 51.9 |
| It is transmitted by mosquito-bug bite                                    | 56.5 |
| It is transmitted by fecal-oral route                                     | 68.4 |
| It is transmitted by food prepared by hepatitis B positive patient        | 79.6 |
| It is transmitted by insufficiently cleaned food                          | 70.2 |
| It is transmitted if one eats remainings of a hepatitis B patient's meal. | 72.9 |
| It is transmitted by tattoo/piercing                                      | 90.7 |
| It is transmitted more easily than HIV                                    | 66.2 |

**Table 5:** Answers of the physicians to the questions designed to assess their knowledge level about protection against this disease.

| <b>Question</b>   | <b>Rate of correct answers (%)</b> |
|---|------------------------------------|
| Vaccination provides protection   | 92                                 |
| Single dose vaccination is sufficient   | 80                                 |
| For effective immunity 3 doses of vaccination should be applied                                   | 92.4                               |
| Hepatitis B carriers should be vaccinated   | 68.4                               |
| Pregnants can be vaccinated   | 66.5                               |
| An infant born to a HBsAg positive mother should get vaccine and immunoglobulin                   | 89.2                               |
| All newborns are vaccinated in our country  | 96.4                               |
| People who have unprotected sex with HBsAg positive patients should have vaccine + immunoglobulin | 85.3                               |
| Using condom during sex is important for protection   | 92.4                               |
| A balanced diet provides protection   | 63.6                               |

|   |      |
|---|------|
| Sportive exercises provide protection                               | 69.3 |
| Hepatitis B screening should be made for every pregnant woman.      | 83   |
| HBsAg positive pregnant should be followed paying special attention | 94.2 |
| Hepatitis B can be diagnosed by blood assessment                    | 98.7 |
| Hepatitis B can be diagnosed by urine analysis                      | 86   |

**Table 6:** Answers of the physicians to the questions designed to assess their knowledge about risk groups for this disease.

| Question  | Rate of correct answer (%) |
|---|----------------------------|
| Healthcare workers                                    | 88.6                       |
| Households of HBsAg (+) person                        | 61.5                       |
| Patients who take frequent transfusions               | 74.2                       |
| Hypertensive patients                                 | 19.6                       |
| Debilitated patients and patients living in nurseries | 46.2                       |
| An infant born to a HBsAg (+) mother                  | 61.1                       |
| Diabetes mellitus patients                            | 17.3                       |
| People with multiple sexual partners                  | 73.3                       |
| Police officers and ambulance staff                   | 53.2                       |
| Hemodialysis patients                                 | 64.6                       |
| COPD patients   | 4.8                        |
| Familial hyperbilirubinemia patients                  | 9.6                        |