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Check and Total Aflatoxin B with Degeneration of the Liver after Hepatitis in Gilan[1]

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ABSTRACT — Aflatoxins are a group of strong fungal toxins which are harmful effects on biological systems. These metabolites in some mammals, birds and fish to cancer, mutations and fetal abnormalities that. The purpose of this study, liver lesions and its correlation with the level of aflatoxin B in serum samples of the patients, is. In this study, 25 serum samples from hepatitis-positive from hospital in the city of Rasht collected by ELISA was tested in the meantime, out of 25 samples of which contained aflatoxin total B (B1 and B2) had. Then to learn Possible liver disease situation and the impact of aflatoxin on the situation, using the results of the ELISA and the values of some blood markers(ALT, AST, ALP, BIL) derived from the patient's blood test results, with the help of statistical calculations and SPSS software to analyze data and communicate and influence between the factors involved there. The results showed that among a group of these factors were significant. The results showed that the activity of liver enzymes (ALT, AST , ALP) in hepatitis have increased significantly over time, which can damage liver cells and to confirm or cholestasis. Also according to the comparisons made to the conclusion that the bilirubin test, the appropriate test to assess the condition of the liver is not. Because usually cause changes in liver failure. However, the amounts of aflatoxin B, from the ELISA test, a synergistic effect of the toxin with hepatitis B and C was confirmed. The result can be total aflatoxin B as a contributing factor in the progression of hepatitis title.
KEYWORDS: *total aflatoxin B, degeneration, liver after hepatitis, Gilan, Iran*

Introduction

Aflatoxins are naturally occurring secondary metabolites of the fungi, *Aspergillus avus* and *Aspergillus parasiticus*. furanocoumarin derivatives are produced under certain environmental conditions and in a variety of substrates, and are common contaminants of a number of staple foods, including maize, ground nuts, rice and sorghum. _e toxins are widely distributed in nature and pose serious public health hazards to humans as a result of their toxic, teratogenic, mutagenic, and highly carcinogenic properties (1, 2). Contamination of crops and toxin production are particularly likely to occur in subsistence farming communities in tropical and sub-tropical regions with high temperatures and humidity. _ese environmental conditions, in addition to the moisture content of plants, are important factors in determining growth of, and toxin production by, these moulds. _e mycotoxins are produced at optimum temperatures of between 25oC and 32oC, moisture contents of greater than 12% but less than 16%, and a relative humidity of 85% (2, 3). Crops that are particularly likely to be affected are those either grown domestically or purchased at local markets. Hepatocellular carcinoma (HCC) is the fifth most common cancer in men and the seventh in women worldwide (1). Due to its poor prognosis, HCC is the third leading cause of cancer-related mortality. There is a striking geo-graphical variation in the incidence of HCC and most of the burden is in developing countries, where over 80% of the cases occur (1). The regions of high incidence of HCC are Eastern and South-Eastern Asia and Middle and Western Africa (1). The geographic variation in HCC incidence might be due to geographic differences in the prevalence of various etiological factors, particularly chronic infection with hepatitis B and/or C virus, and dietary exposure to aflatoxins (2). Chronic hepatitis B Virus (HBV) infection prevalence ranges geographically from 0.2% to 20% (3). Approximately 45% of chronic HBV carriers live in highly endemic areas, such as Africa and the Asia-Pacific region where there is also a high incidence of HCC (3). Chronic HBV infection is believed to be responsible for 55% of HCC cases worldwide and 89% in regions where the virus is endemic or hyper endemic (4, 5). Although chronic HBV infection is the major risk factor for HCC, other environmental exposures such as drinking alcohol, tobacco smoking and aflatoxins have also been suggested to increase risk (6). Aflatoxins are naturally occurring

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mycotoxins produced by only a few Aspergillus species of which A. flavus and A. parasiticus are the most important; they live in hot and humidified conditions. Aflatoxins commonly contaminate foods such as peanuts, grain, legumes, and corn. They are carcinogenic in experimental animal models and aflatoxin B1 (AFB1) is the most potent hepatocacinogen (7).

Materials and methods

In order to carry out experimental projects, the need for serum samples were positive for hepatitis. For this purpose, the samples in the period March 92 to May 93, were collected from hospitals in the city of Rasht. The number of these samples, 25 (including HCV Ab and HBsAg), respectively. In addition, serum samples, the results of CBC, some of them, to evaluate the possibility of using some of the factors affecting the liver, serum Shd.nmnh get ice and freeze-dried using the Xbox transferred from the hospital to the laboratory was. After receiving the serum samples, the samples to determine the presence or absence of aflatoxin B and determine the dose in samples containing aflatoxin B, were tested by ELISA. Total Aflatoxin Elisa Kit, product of Euro Clone and made in Italy. The kit works by ELISA to detect quantitative aflatoxin B1, B2, G1 and G2 in cereals, grains, cotton seed and animal feed used. This plate contains 96 wells or 12 columns or strip is left. End of each of the wells coated with rabbit IgG that during the test, the antibodies are anti-aflatoxin band.

Results

The results of the ELISA test revealed that 15 of 25 samples positive for serum hepatitis (B and C), containing aflatoxin B, and total. After analysis of the data obtained from the ELISA values and the values of a group of blood markers (ALT, AST, ALP, BIL) patients, to compare the factors involved there. Some of these factors are statistically significant relationships that were associated with each other, as the graph below show.

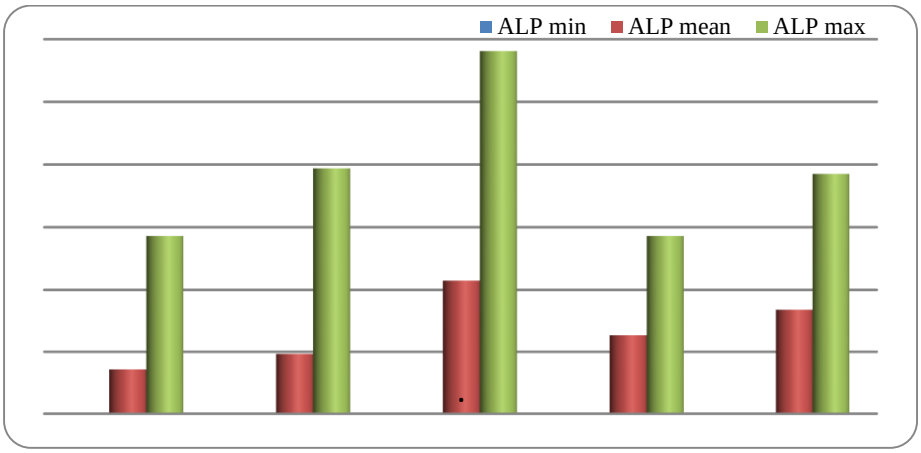

Figure 1. Compare alkaline phosphatase activity in patients based on age

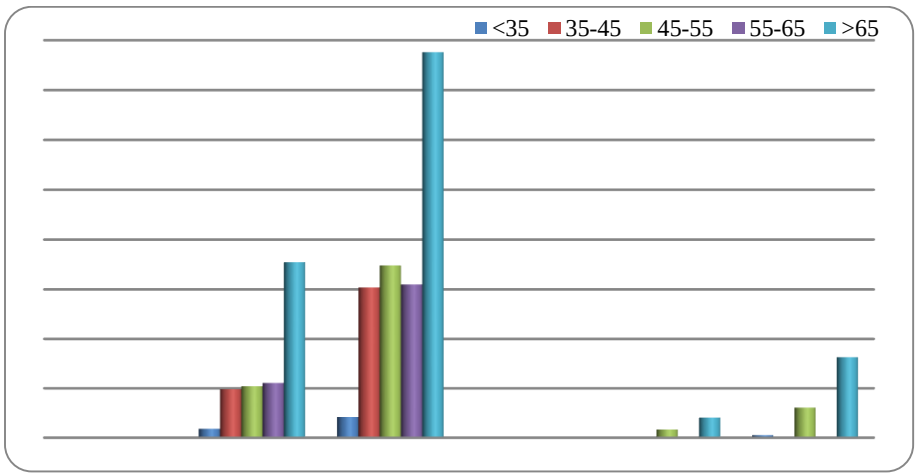

Figure 2. Compare the age of patients with bilirubin levels and the amount of aflatoxin in the total study population.

All the cases, less than the index and the index is significant. (Z = 2.023) (Sig = 0.043) Correlation analysis showed a significant difference between the measured values of the total aflatoxin B in patients who test HBsAg, hepatitis B virus are infected, and a significant relationship was confirmed. (Z = 2.035) (Sig = 0.041)

Discussion and conclusion

One of the most important factors in the development of effective non-viral hepatitis, are aflatoxins. Aflatoxins are a group of strong fungal toxins that cause adverse effects on biological systems. These toxins through ingestion, inhalation, and absorption back into the body's blood and tissues in the body that accumulate the most in liver and are condensed, so that the concentration of the toxin in the liver can be 10 times the amount of muscles. A set of common blood tests for the preliminary assessment of liver disease are used, including measurement of serum alanine aminotransferase (ALT or SGPT), aspartate aminotransferase (AST or SGOT), alkaline phosphatase (ALP), serum bilirubin (BIL) albumin and prothrombin time is measured in this study, we examined four factors. Level measurement of serum aminotransferases, particularly ALT levels, as easy and non-invasive method used to track the activities of liver disease, but it looks. These enzymes are always to determine the severity of the condition or prognosis of it cannot be trusted. Increased levels of alkaline phosphatase of liver origin is not entirely appropriate for almost any type of cholesteric liver disease, this enzyme increases to less than 3 times the normal value may be seen. Where there elevated bilirubin or increased levels of transaminases, alkaline phosphatase level increased hepatic origin, often but not always, non-infectious, non-toxic cholestasis early stages raises. Although the increase in serum bilirubin levels as a prognostic marker is not intended to be, but can be valuable in a number of cases (1, 8),In a study in 1390 by doctor 's and partners in order to examine the association between serum markers of liver fibrosis severity on the number of patients with chronic hepatitis took place, the significance of this relationship proved and increased levels of liver enzymes seen Gsht.amrvz·h Try to be more study on the possibility of using repeatable, cheap and especially non-invasive and less complications such as checking blood levels of some markers, such as ALT, AST, ALP, BIL and in connection with The severity of liver fibrosis are done. However, to interpret the results of this study to investigate the relationship between total aflatoxin B and liver patients pay status. Given the significance of the values of total aflatoxin B in HBsAg positive and negative, obviously proves the existence of specific and nonspecific clinical signs Hpatvtvksyn fungal considered in patients with hepatitis have a decisive impact. (Sig = 0.043), while the situation in positive HCV Ab, has not been proven. (Sig = 0.225) that it would be proof of this is that factors other than the total aflatoxin B, hepatitis C have been involved in the development or hepatitis C, hepatocytes did not hurt that the metabolism of aflatoxin B, also turned to M be seriously affected. Given that the total amount of aflatoxin B always positive in HBsAg positive and HCV Ab was significant, it can be concluded that this could indicate that the hepatotoxic in patients with hepatitis B associated mycotoxins and C, consequences expand and can be verified by the synergistic effect of aflatoxins with HBV and HCV in liver lesions.

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