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Chapter 1 : Kidney, Liver & Urinary | BIDMC

Urinary neopterin levels were elevated in patients with chronic active hepatitis and in those with chronic persistent hepatitis but not in patients with alcohol-induced liver disease or in those with non-alcoholic fatty liver.

The aim of this study was to relate urine levels of neopterin, a marker of activation of the cellular immune system, with grading and staging of NASH. Urine concentrations of neopterin, routine tests, insulin and C-peptide levels were assessed in 50 patients with NASH, 25 patients with chronic viral hepatitis CVH , and in 26 healthy controls. There was no significant correlation between urine neopterin levels and inflammation grade in the liver. Urine neopterin levels are a marker of cellular immunity and are higher in patients with NASH. However, neopterin levels were not significantly associated with histopathological grade and stage of disease. Urine neopterin; Nonalcoholic steatohepatitis; Grading; Staging Introduction and can progress to end-stage liver disease [5]. The patho- genesis of this entity remains unclear, but the hypothesis that Neopterin is a pyrazino-pyrimidine compound, which excessive intrahepatic lipid accumulation could trigger a originates from guanosine triphosphate [1]. Neopterin is local inflammatory response has recently been suggested [6]. Correlation between criterion for cell-mediated immunity in some clinical the levels of liver enzymes and urine neopterin was also conditions [2]. Since neopterin excretion takes place before investigated. The results of the patient groups were compared clinical symptoms appear, biochemical follow-up of neo- with that of a healthy control group. Subjects with following criteria: To exclude other causes of liver Informed written consent was obtained from all patients at disease, all subjects underwent complete laboratory inves- the time of their liver biopsy. The study was conducted in tigation for viral hepatitis, sclerosing cholangitis, hemochro- conformance with the Helsinki Declaration and was matosis, autoimmune hepatitis, or primary biliary cirrhosis approved by the ethical committee of Gulhane School of non-organ-specific autoantibodies, such as antinuclear anti- Medicine. Blood cells were separated by genetic diseases a-1 antitrypsin, ceruloplasmin. Patients centrifugation immediately thereafter, and sera were kept at and controls who reported a history of diabetes mellitus, C until analysis. All subjects had normal renal and fasting serum glucose Glucose , total cholesterol TC , thyroid function. Olympus AU autoanalyzer using commercial kits Patients consuming more than 20 g of alcohol per day Olympus, Hamburg, Germany. Insulin and C-peptide levels were excluded from the present study. Patients suspected of were determined with a chemiluminoassay technique by the surreptitious alcohol consumption after interview with Immulite hormone autoanalyzer using commercial kits relatives were also excluded. Selection Neopterin levels and creatinine levels were determined by criteria included compliant behavior and regular eating using a High Performance Liquid Chromatography HPLC habits. Dietary evaluation was conducted before the study, system with a fluorescence detector in urine samples and participants were encouraged to maintain constant collected in the morning, as previously defined by Fuchs et dietary habits and to pursue their normal activities. Macro- not received interferon or other antiviral treatment within vesicular steatosis was graded 0â€”3 based on percent of this period. P values b 0. Gender and age distributions of patients in the Stage 0 The activity of hepatitis necroinflammatory grade higher in NAFLD patients and the CVH group as compared was determined by the presence of hepatocellular steatosis, with the control group Table 1. There was no significant ballooning, and inflammation acinar and portal features as difference between mean urine concentrations of neopterin follows: The severity of hepatic fibrosis stage was defined Table 1. Histopathological examinations revealed simple steato- Hyperlipidemia was defined as serum TC level more than sis in 7 patients and steatohepatitis in 43 patients. Urine neopterin concentrations were were considered overweight and obese, respectively. The deviation SD or the number percentage of patients with urine neopterin concentrations were not correlated with each variable. In order to The ROC curves for urine neopterin concentration were determine the cut-off point of urine neopterin, we used the used to discriminate NASH from simple steatosis. The distributions of urine neopterin levels according to stages and grades of nonalcoholic fatty liver disease grade 0 means simple steatosis. Similarly, Sanyal et al. Although the neopterin levels were higher in patients compared to the control group, no correlation was found with histopathological examination. Thus, neopterin levels are not well suited for

indicating the differential diagnosis in grading and staging based on our study. However, in the future, it may be interesting to investigate the role of neopterin in liver fibrosis and inflammation with NAFLD in Fig. The urine neopterin threshold for the prediction of NASH was However, no correlation was found between neopterin and Discussion histological grade and stage of disease Fig. Neopterin may be one of the causative agents contributing to In this study, we determined that there is an increased urine pathophysiological mechanisms of liver fibrosis or steatosis concentration of neopterin in patients with NASH, possibly rather than progression of disease. In our patient group, neopterin levels have also et al. Immune response-associated production of neopterin. J Exp Med been found statistically higher than the control group, even ; Increased serum and urinary neopterin in when no fibrosis stage 0 fibrosis was seen in the nephrotic syndrome indicate cell-mediated immune dysfunction. Am J histopathological examination. Thus, the high neopterin Kidney Dis ; Since Association between homocysteine and neopterin in healthy subjects simple steatosis is a reversible state, urine neopterin levels measured by a simple HPLC-fluorometric method. Neopterin in clinical control group. The neopterin elevation may be one of the practice. Clin Chim Acta ; Nonalcoholic fatty liver disease. N Engl J Med ; We speculated that the elevated urine neopterin levels [6] James O, Day C. Non-alcoholic steatohepatitis another disease of affluence. However, this hypothesis must be evaluated the histological lesions. Am J Gastroenterol ; Neopterin, biochemistry and clinical use NAFL is a common disease associated with insulin as a marker for cellular immune reactions. Int Arch Immunol ; Significantly higher C-peptide resistance and mitochondrial abnormalities.

Chapter 2 : Alcoholic liver disease: MedlinePlus Medical Encyclopedia

Fukuda et al.: Urinary xanthopterin and neopterin in liver diseases Patients and Methods Healthy individuals As controls, urine samples were collected from apparently healthy individuals.

Chronic hepatitis B; B: Neopterin is a pteridine derivative produced by macrophages activated under the control of gamma-interferon and released from T-cells by the activation of the cellular immune system[1]. It has been demonstrated that there is a relation between neopterin levels in biological materials, the changes in their elimination rates and various pathological conditions. In addition to its association with activation of cell-mediated immunity and with cell expansion, significant changes were seen in neopterin levels and elimination rates in viral diseases for example viral hepatitis [2 , 3], atypical phenylketonuria[4], organ and tissue rejection[5], autoimmune diseases such as rheumatoid arthritis and systemic lupus erythematosus[6] , genital cancer and hematologic neoplastic disorders[7 , 8]. In all these cases, enhanced concentrations of neopterin have been shown to have prognostic significance[9]. In chronic active hepatitis, necrosis is observed as disseminated to the parenchyma and the perilobular consisting of lymphocytes and plasma cells. The gamma-interferon released from T-lymphocytes in the area stimulates and activates macrophages[10]. Lymphocytic cell infiltration was shown, in addition to the macrophages within the fibrous bands in the liver of patients with cirrhosis resulting from various etiologies[11]. Thus, it is suggested that neopterin secreted from the inflammation-activated macrophages can be an indication of the inflammation in the liver in chronic liver diseases[10 - 12]. Studies in adult patients with acute hepatitis, chronic hepatitis and cirrhosis have shown that serum neopterin levels are elevated and this elevation is correlated with the severity of disease. However, there is no data about serum neopterin concentrations in children with chronic hepatitis B and liver cirrhosis. Therefore, we investigated serum neopterin concentrations in children with hepatitis-B-related chronic liver disease and correlated these concentrations with liver function tests and inflammatory activity of the liver. The aim of this study was to demonstrate a possible relationship between serum neopterin levels and severity of the disease. The control group consisted of otherwise healthy, age- and sex-matched children whose biochemical tests were also within normal limits. The study was performed according to the Declaration of Helsinki, and all parents gave informed consent for the participation of their children in the study. The patients were evaluated before no treatment was initiated. Hepatitis-B-related active liver cirrhosis was diagnosed by clinical, serological, and biochemical tests as well as histopathological investigation of liver biopsy. The cirrhotic patients were classified by the Child-Pugh classification defined by Pugh et al[13]. Liver function tests serum alanine aminotransferase ALT , aspartate aminotransferase AST , gamma-glutamyl transpeptidase GGT , alkaline phosphase AP and albumin were also performed in all subjects using an autoanalyzer. All patients with chronic hepatitis and liver cirrhosis underwent liver biopsy. Liver biopsy was performed according to the Menghini technique. In the samples obtained from the patients with chronic hepatitis and liver cirrhosis, histological activity index HAI score was defined as suggested by Knodell et al[14] and modified by Desmet et al[15]. A Chi square test was used to analyze the categorical data, whereas an ANOVA test was used to compare the numerical data of the groups. The homogeneity of the intergroup variance was tested by the Levene method. The correlations between serum neopterin levels and biochemical and histological parameters were determined by the Pearson correlation test. There were no significant differences between the three groups in terms of sex and age. According to the Child-Pugh classification, all of the 32 patients with liver cirrhosis were in stage A. DISCUSSION It has been reported that neopterin levels increase in body fluids and change in parallel to the activity of the disease in many infectious diseases and various malign disorders in which activation of the cellular immune system plays an important role in the pathogenesis[7 , 16 , 17]. Gamma-interferon is produced by the stimulation of T-lymphocytes by several specific antigens, primarily viral antigens, thus it was found that the neopterin levels were especially elevated in viral infections. Evidence of elevation in neopterin levels in body fluids due to the activation of immune system, which was also supported by several studies involved in diseases leading to activation of the immune system, suggests that elevated neopterin can also be a marker for the follow-up of chronic liver disorders,

especially of viral liver disorders[9]. However, since no such data is available related to children, our results can only be compared to results obtained from the studies carried out with adult patients. It is suggested that serum neopterin levels can be used as a significant parameter for the differential diagnosis of non-infectious hepatitis and viral hepatitis[18]. The relation between neopterin levels and severity of the disease has been proved, and it can be used in combination with clinical data as a prognostic evidence for the progress of the disease[19]. In asymptomatic HbsAg carriage, acute hepatitis, chronic inactive hepatitis, chronic active hepatitis, liver cirrhosis, hepatocellular carcinoma and alcoholic liver disease, serum and urine neopterin levels were found to be higher than in controls. The most elevated neopterin levels were seen in patients with acute hepatitis[20]. In adult patients with liver cirrhosis, serum neopterin levels were more elevated than non-cirrhotic patients and control groups[9 , 21] whereas out of non-cirrhotic patients, patients with chronic hepatitis B had also elevated neopterin levels[9]. Serum neopterin levels were elevated in patients with alcoholic cirrhosis[22]. Neopterin measurement was reported to be beneficial for the differential diagnosis of viral and alcoholic liver diseases, and it has been shown that patients with viral hepatitis had higher neopterin concentrations compared to patients with alcoholic liver diseases[20]. Serum and urine neopterin levels were elevated from baseline after the initiation of interferon therapy in HbeAg positive patients with chronic hepatitis B, and they remained markedly elevated during the treatment. However, the neopterin levels were restored rapidly to baseline values after the end of the therapy. Therefore it was suggested that serum and urine neopterin levels could be a good marker of the cellular immunity during interferon treatment in the chronic hepatitis B infection[23]. In our study, serum neopterin levels was found to be markedly higher in the pediatric patients with chronic hepatitis B and liver cirrhosis than in healthy controls, which is in agreement with the data obtained from the adult patients. It was also higher in patients with cirrhosis when compared with chronic hepatitis B patients. The patients in the cirrhotic stage, independent of their etiology, have elevated concentrations of serum neopterin levels released from the activated macrophages. In those patients, substances that are considered to stimulate the macrophages such as immune complexes or endotoxins, increase in blood due to the lack of peptide clearance by the liver[24]. These mechanisms explain the highest concentrations of serum neopterin in patients with cirrhosis. Although no correlation was found between serum neopterin levels and ALT, AST and AP levels in adults with various chronic liver diseases of various etiologies, a negative correlation was found with albumin[9]. While neopterin levels were found correlated with liver function tests in patients with acute hepatitis, this correlation was not verified in patients with chronic liver diseases[20]. However, in other studies, a correlation was found between serum neopterin levels and biochemical tests or liver inflammatory grading in patients with chronic hepatitis C and B[9 , 25]. We found a significant correlation between serum neopterin levels and ALT or HAI in children with hepatitis-B-related chronic hepatitis B and liver cirrhosis. This data agrees with the data obtained from the adult patients. In conclusion, these results suggest that measurement of serum neopterin levels can be considered as a marker of inflammatory activity and severity of disease in children with hepatitis-B-related chronic liver disease. However, this needs to be further studied in children. Urinary neopterin levels in acute viral hepatitis. Value of urinary neopterin in the differential diagnosis of bacterial and viral infections. Hyperphenylalaninaemia caused by defects in biopterin metabolism. J Inherit Metab Dis. Urinary neopterin reflects clinical activity in patients with rheumatoid arthritis. Evaluation of pteridines in patients with different tumors. Serum neopterin concentrations in chronic liver disease. Immune response-associated production of neopterin. Release from macrophages primarily under control of interferon-gamma. Relationship of interferon-gamma and neopterin levels during stimulation with alloantigens in vivo and in vitro. Immunological mechanisms in chronic liver disease. Transection of the oesophagus for bleeding oesophageal varices. Formulation and application of a numerical scoring system for assessing histological activity in asymptomatic chronic active hepatitis. Classification of chronic hepatitis: Neopterin as marker for activation of cellular immunity: Neopterin and viral infections: Potential of urinary neopterin excretion in differentiating chronic non-A, non-B hepatitis from fatty liver. Clinical significance of serum and urinary neopterin levels in patients with various liver diseases. Adenosine deaminase isoenzymes and neopterin in liver cirrhosis. Neopterin and soluble tumor necrosis factor receptor type1 in alcohol-induced cirrhosis. Serum and urinary

neopterin levels in patients with chronic active hepatitis B treated with interferon. Res Commun Chem Pathol Pharmacol.

Chapter 3 : Alcoholic Liver Disease | Clinical Gate

Serum neopterin levels have been determined by RIA in patients affected by chronic alcoholic liver disease, 68 of them cirrhotics, and in 12 controls.

The liver The liver The liver is your largest internal organ. A wide range of diseases and conditions can damage the liver and lead to cirrhosis. The most common causes are: Chronic alcohol abuse Chronic viral hepatitis hepatitis B and C Fat accumulating in the liver nonalcoholic fatty liver disease Other possible causes include: Complications related to blood flow: High blood pressure in the veins that supply the liver portal hypertension. Cirrhosis slows the normal flow of blood through the liver, thus increasing pressure in the vein that brings blood from the intestines and spleen to the liver. Swelling in the legs and abdomen. Portal hypertension can cause fluid to accumulate in the legs edema and in the abdomen ascites. Edema and ascites also may result from the inability of the liver to make enough of certain blood proteins, such as albumin. Enlargement of the spleen splenomegaly. Portal hypertension can also cause changes to the spleen. Decreased white blood cells and platelets in your blood can be a sign of cirrhosis with portal hypertension. Portal hypertension can cause blood to be redirected to smaller veins, causing them to increase in size and become varices. Strained by the extra load, these smaller veins can burst, causing serious bleeding. Life-threatening bleeding most commonly occurs when veins in the lower esophagus esophageal varices or stomach gastric varices rupture. Bacterial infections are a frequent trigger for bleeding. If you have cirrhosis, your body may have difficulty fighting infections. Ascites can lead to spontaneous bacterial peritonitis, a serious infection. Cirrhosis may make it more difficult for your body to process nutrients, leading to weakness and weight loss. Buildup of toxins in the brain hepatic encephalopathy. These toxins can then build up in the brain and cause mental confusion and difficulty concentrating. Hepatic encephalopathy symptoms may range from fatigue and mild impairment in cognition to unresponsiveness or coma. Jaundice causes yellowing of the skin and whites of the eyes and darkening of urine. Some people with cirrhosis lose bone strength and are at greater risk of fractures. Increased risk of liver cancer. A large proportion of people who develop liver cancer that forms within the liver itself have cirrhosis. Some people end up experiencing multiorgan failure. Prevention Reduce your risk of cirrhosis by taking care of your liver Do not drink alcohol if you have cirrhosis. If you have liver disease but do not have cirrhosis, talk to your doctor about whether you may drink alcohol at all. For healthy adults, that means up to one drink a day for women of all ages and men over age 65, and up to two drinks a day for men age 65 and younger. Eat a healthy diet. Select whole grains and lean sources of protein. Reduce the amount of fatty and fried foods you eat. Caffeinated coffee may protect against fibrosis and liver cancer. Maintain a healthy weight. An excess amount of body fat can damage your liver. Talk to your doctor about a weight-loss plan if you are obese or overweight. Reduce your risk of hepatitis. Sharing needles and having unprotected sex can increase your risk of hepatitis B and C. Ask your doctor about hepatitis vaccinations.

Chapter 4 : [Blood levels of neopterin in patients with liver cirrhosis].

Urinary and Serum Pteridines in Liver Diseases Mazda, Toshio; Iino, Teruhiko; TsusuÃ©, Motoo Summary The aim of this mini-review is to show the usefulness of pteridines as clinical markers. We assayed urinary neopterin and xanthopterin levels in liver disease.

Liver disease, on the other hand, is commonly prescribed to people who consume too much alcohol. Recently, another type of liver disease has been on the rise. Non-alcoholic fatty liver disease NAFLD is a different type of liver disease that is not affected by alcohol intake. The liver acts as a filter for the body by separating helpful nutrients and discarding harmful substances. Consequently, the liver encounters many hard-to-handle toxins, as well as lipids or fat cells. Since NAFLD is affected by the amount of fat in the liver, individuals who are overweight or obese are often at risk. Also, people with diabetes or high blood pressure can develop the disease. NAFLD has also been seen in people who undergo rapid weight loss. NAFLD is usually confirmed via blood tests and ultrasounds. The disease affects the body negatively by causing inflammation in the liver. This inflammation can lead to scarring of the liver tissue which can affect liver functions. If left unchecked, the inflammation and scarring can lead to the escalated form of NAFLD which can, as mentioned above, lead to liver failure. The best way to avoid developing non-alcoholic fatty liver disease is by leading a healthy lifestyle. If you eat healthy foods, especially ones that support your liver , get regular exercise, and limit your alcohol intake, you should be able to lower your risks of developing NAFLD or NASH. Leave a comment and share your experience with us. References 4 Mayo Clinic Staff. Nonalcoholic Fatty Liver Disease. Information and statements made are for education purposes and are not intended to replace the advice of your doctor. Global Healing Center does not dispense medical advice, prescribe, or diagnose illness. The views and nutritional advice expressed by Global Healing Center are not intended to be a substitute for conventional medical service. If you have a severe medical condition or health concern, see your physician. Tried to do a detox program only to have the products raise my blood pressure to a dangerous high. Was unable to complete the detox program you offered due to the blood pressure issue. I would appreciate your input on how to improve my health and reduce the problem of NASH â€¦. What raised your blood pressure? Silvia Shinpaugh I did too just find out today of having a fatty liver. I was diagnosed with High Blood Pressure 12 years ago. But, been taking 2 different HBP medications to control it. Hopefully I can stick to a healthy diet and lose the weight I need to, so I can have my liver healthy againâ€¦good luck Dottie.

Chapter 5 : Urinary and Serum Pteridines in Liver Diseases : Pteridines

Urinary neopterin levels were above normal in 49 of 51 patients with viral hepatitis and elevations during the course of hepatitis showed a pattern similar to that of the usual liver biochemical tests, suggesting that neopterin levels were related to the clinical activity of the viral disease.

Chapter 6 : What is Non-Alcoholic Fatty Liver Disease?

Cirrhosis, hepatitis, pancreatic cancer, pancreatitis, bile duct cancer or blockage and alcoholic liver disease all are known to cause dark urine. Thus, observing cola-colored pee without understanding its etiology should result in a quick referral to a doctor.

Chapter 7 : Suboxone Disease Interactions - www.nxgvision.com

In asymptomatic HbsAg carriage, acute hepatitis, chronic inactive hepatitis, chronic active hepatitis, liver cirrhosis, hepatocellular carcinoma and alcoholic liver disease, serum and urine neopterin levels were found to be higher than in controls.

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Chapter 8 : Common Characteristics of Liver Disease | Johns Hopkins Medicine Health Library

SPECTRUM OF DISEASE. Chronic alcohol abuse can result in a spectrum of liver injury that ranges from mild fatty infiltration to cirrhosis and hepatocellular carcinoma (). 7, 8 Fat accumulation in liver cells, which is the earliest and most predictable response to alcohol ingestion, is seen in 90% of heavy drinkers.

Chapter 9 : Hepatorenal syndrome: MedlinePlus Medical Encyclopedia

The distributions of urine neopterin levels according to stages and grades of nonalcoholic fatty liver disease (grade 0 means simple steatosis). The ROC curves for urine neopterin concentration were used to discriminate NASH from simple steatosis.