YEVROSIYO PEDIATRIYA AXBOROTNOMASI/ЕВРАЗИЙСКИЙ ВЕСТНИК ПЕДИАТРИИ

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ЕВРАЗИЙСКИЙ ВЕСТНИК ПЕДИАТРИИ

TIBBIY ILMIY-INNOVATSION JURNAL

МЕДИЦИНСКИЙ НАУЧНО-ИННОВАЦИОННЫЙ ЖУРНАЛ

2 (13)
2022

ISSN 2181-1954
ESSN 2181-1962

ЕВРОСИЁ ПЕДИАТРИЯ АХБОРОТНОМАСИ
ЕВРАЗИЙСКИЙ ВЕСТНИК ПЕДИАТРИИ

Тиббий илмий-инновацион журнал
Медицинский научно-инновационный журнал

Учредители:
Ташкентский педиатрический медицинский институт
Санкт-Петербургский государственный
педиатрический медицинский университет

Зарегистрирован агентством информации и массовых коммуникаие при Администрации Президента Республики Узбекистан 08.05. 2019 г.
Свидетельство №1023

Журнал с 01.09. 2019 года включень в список иностранных журналов ВАК Республики Узбекистан. Протокол № 268/7 от 30.08. 2019 года.

Адрес редакции:
100140 Республика Узбекистан
г. Ташкент ул Богишамол , 223
тел: +99871 - 260-28-57;
факс: +998971 - 262 - 33-14;
www: tashpmi.uz/ru/science/journal pediatry

2(13) 2022
Апрель-июнь

UDC 615.099.036.8: 618.2-055.27:616.9

RESULTS OF IMMUNOHISTOCHEMICAL STUDY OF LIVER DISEASES IN MATERNAL MORTALITY

E.A. Eshbayev

Tashkent Medical Academy, Republican Center for Pathological Anatomy

Resume

Maternal mortality One of the most common complications observed during pregnancy today is liver failure. Among the main complications caused by this liver are intrahepatic cholestasis in pregnant women, liver damage associated with preeclampsia, which can lead to serious complications as a result of the development of acute fatty hepatosis in pregnant women. Evaluation of pathomorphological changes in the liver as a result of immunohistochemical examination is currently being evaluated for the first time in the country through this scientific work, and 20 patients were selected for this study from 3 different fatal diseases that underwent autopsy as a result of the above maternal diseases. Liver changes in these patients are assessed by immunohistochemical reagents Ki-67, Bcl-2, CD 20, CD3.

Key words: pregnancy, liver disease, cholestasis, hepatitis, cirrhosis, acute fatty hepatosis.

ONALAR O‘LIMIDA JIGAR KASALLIKLARINING IMMUNOGISTOKIMYOVIY TEKSHIRUV NATIJALARI

E.A. Eshbayev

Toshkent tibbiyot akademiyasi, Respublika patologik anatomiya markazi

Rezyume

Onalar o‘limi xozirgi kunda xomiladorlik vaktida kuzatiladigan eng ko‘p asoratlardan biri jigar yetishmovchiligi xisoblanadi. Ushbu jigar olib keladigan asosiy asoratlardan homilador ayollarning intragepatik xolestazi, preeklampsiya bilan bog‘liq jigar shikastlanishi, homilador ayollarning o‘tkir yog‘ gepatozi rivojlanishi natijasida og‘ir asoratlarga olib kelishi mumkin. Jigarda bo‘ladigan patomorfologik o‘zgarishlarni immunogistoximik tekshiruv usuli natijasida baholash xozirgi vaqtda Respublikamizda ilk bor ushbu ilmiy ish orqali baholanmoqda va ushbu tekshiruvni o‘tkazish uchun yuqoridagi onalar o‘limiga olib kelgan kasalliklar natijasida autopsiya amaliyoti o‘tkazilgan 3 xil o‘limga olib kelgan kasalliklardan 20 tadan bemorlar tanlab olingan. Ushbu bemorlardagi jigardagi o‘zgarishlar immunogistokimyoviy kuyidagi reagentlar Ki-67 , Bcl-2, CD 20, CD3 orqali baholanadi.

Kalit so‘zlar: homiladorlik, jigar kasalliklari, xolestaz, gepatit, sirroz, o‘tkir yog‘li gepatoz.

РЕЗУЛЬТАТЫ ИММУНОГИСТОХИМИЧЕСКОГО ИССЛЕДОВАНИЯ ЗАБОЛЕВАНИЙ ПЕЧЕНИ ПРИ МАТЕРИНСКОЙ СМЕРТНОСТИ

Э.А. Эшбаев

Ташкентская медицинская академия, Республиканский центр патологической анатомии

Резюме

Одним из наиболее частых осложнений материнской смертности при беременности на сегодняшний день является печеночная недостаточность. Основными осложнениями, приводящими к данной печеночной недостаточности, являются внутрипеченочный холестаз у беременных, поражение печени, связанное с гестозом, и тяжелые осложнения, обусловленные развитием острого жирового гепатоза у беременных. Оценка патоморфологических изменений в печени в результате иммуногистохимического исследования в настоящее время проводится впервые в стране посредством данной научной работы. Из числа вступивших заболеваний отобрано 20 пациентов. Изменения печени у этих больных оценивают с помощью иммуногистохимических реактивов Ki-67, Bcl-2, CD 20, CD3.

Ключевые слова: беременность, заболевания печени, холестаз, гепатит, цирроз, острый жировой гепатоз.

ISSN 2181-1954. EISSN 2181-1962

Relevance

Maternal mortality is one of the highest pregnancy rates to date. One of the most severe complications of maternal mortality in pregnant women is liver pathology. Excessive vomiting in pregnant women, intrahepatic cholestasis in pregnant women, liver damage associated with preeclampsia, the development of acute fatty hepatosis in pregnant women can lead to serious complications. The development of these pathological conditions in the liver confirms the high rate of perinatal mortality.

Purpose: Immunohistochemical study of specific morphological changes in liver tissue isolated at autopsy of patients who died from liver diseases during pregnancy, and the application of practical recommendations.

Materials and methods: Macroscopic, microscopic and immunohistochemical methods were used to study the liver of those who died from COVID-19 in the practice of the RPAC (Republican Pathological Anatomical Center) Ministry of Health of the Republic of Uzbekistan in 2020-2021. Clinical and anamnestic data were analyzed by analyzing the medical history and the autopsy report. Histological sections were made from paraffin blocks made from spleen tissue obtained at autopsy and stained with hematoxylin-eosin stain. Histological preparations were examined under a trinocular light microscope and photomicrographs of the corresponding areas were taken.

Research and discussion

Immunohistochemistry - a diagnostic method for immunological and histochemical reactions - is one of the main methods of pathomorphological diagnosis, histologically (pathomorphologically) immunohistochemical examination of patients morphologically under a microscope was performed to verify and evaluate the results of antigen testing. The study is carried out to analyze various processes. To identify molecular structures in cells, study cellular localization, development of precancerous processes, monitor these processes, determine prognostic complications of the disease, determine tumor stages, determine treatment tactics, dynamic observation and treatment processes, the origin of tumors, this examination method is important for identifying potential groups risk.

Table 1.

Functions of reagents in the cell

№	Reagents	Reagent function
1	Ki-67	Sign of cell proliferative activity. Calculated as a percentage and indicates that the percentage is active, depending on the type of additional cellsм. This supplement is a reagent for disease prognosis. The higher the Ki-67, the more dangerous and faster the growth of the tumor.
2	Bcl-2	Bcl-2 is a protein reagent that prevents natural apoptosis.
3	CD 20	CD20 is a reagent found on the surface of B-lymphocytes. Human gene product - MC4A1. Participates in the activation and proliferation of B-lymphocytes.
4	CD3	CD3 is a polyprotein complex located on the surface of T-lymphocytes, a cellular complex that indicates the main level of activity of T-cell reagents.

Patients who underwent immunohistochemical study for maternal mortality №-60

№	**Diseases**	**Quantity**
1	Intrahepatic cholestasis	20 patients
2	Preeclampsia	20 patients
3	Fatty liver disease	20 patients

Intrahepatic cholestasis

Signs of proliferative activity of Ki-67 cells. Changes in the liver of patients who died as a result of intrahepatic cholestasis were assessed as low proliferative activity up to 10%, moderate proliferative activity 10-20% and high proliferative activity more than 20%. This reagent is a reagent that indicates additional disease prognosis. The higher the Ki-67 value, the more it indicates the degree of danger and the rapid development of cells or tumors. In all 20 selected patients, the proliferative activity of Ki-67 ranged from 1 to 8%.

ISSN 2181-1954. EISSN 2181-1962

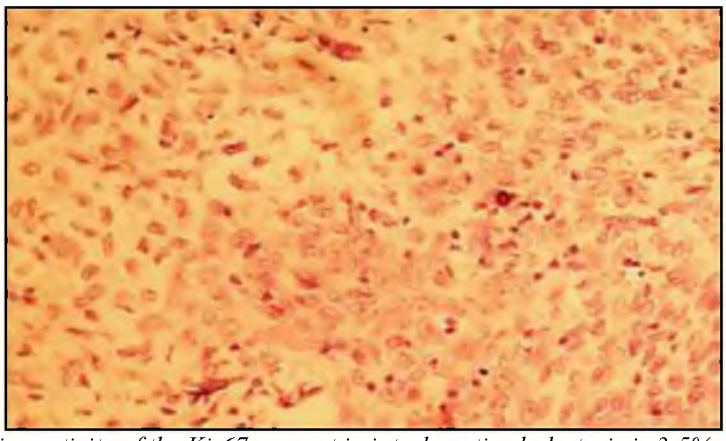


Fig.1. The proliferative activity of the Ki-67 reagent in intrahepatic cholestasis is 3-5%. The Dab coloring is chromogenic. Lens 20-Eyepiece 40.

Bcl-2 is a protein reagent that prevents natural apoptosis. These reagents were evaluated positively and negatively. Liver changes in patients who died as a result of intrahepatic cholestasis were negative in all 20 patients examined with this reagent. **CD20** is a reagent found on the surface of B-lymphocytes. It is a reagent involved in the activation and proliferation of B-lymphocytes. These reagents were evaluated positively and negatively. Inflammatory reactions in lymphocytes due to inflammation of the liver were assessed by positive and negative indicators. Positive reaction results were detected in all selected 20 patients. Chronic inflammation of the liver in patients who died as a result of intrahepatic cholestasis indicates an increase in the number of lymphocytes.

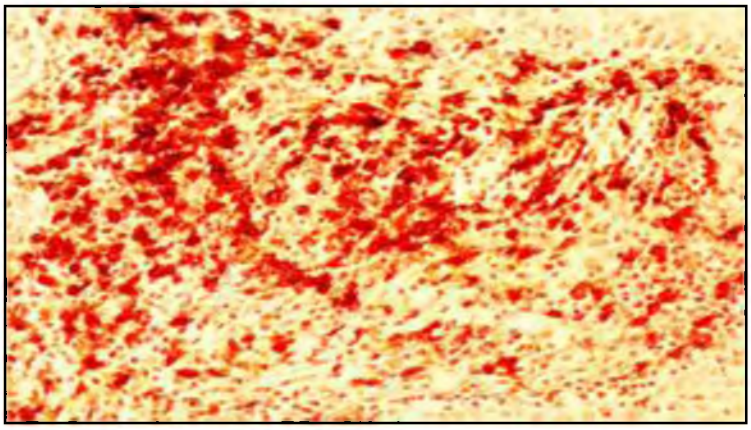


Fig.2. Positive reaction of the CD20 reagent for liver B-lymphocytes in intrahepatic cholestasis. The Dab coloring is chromogenic. Lens 20-Eyepiece 40.

CD3 is a polyprotein complex located on the surface of T-lymphocytes, a cellular complex that indicates the main level of activity of T-cell reagents. These reagents were evaluated positively and negatively. Immunohistochemical reactions in lymphocytes in liver inflammation were assessed by positive and negative indicators. Positive reaction results were detected in all 20 selected patients.

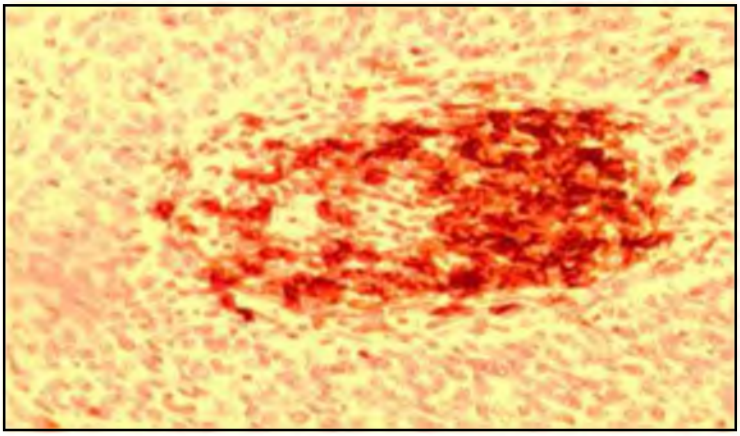


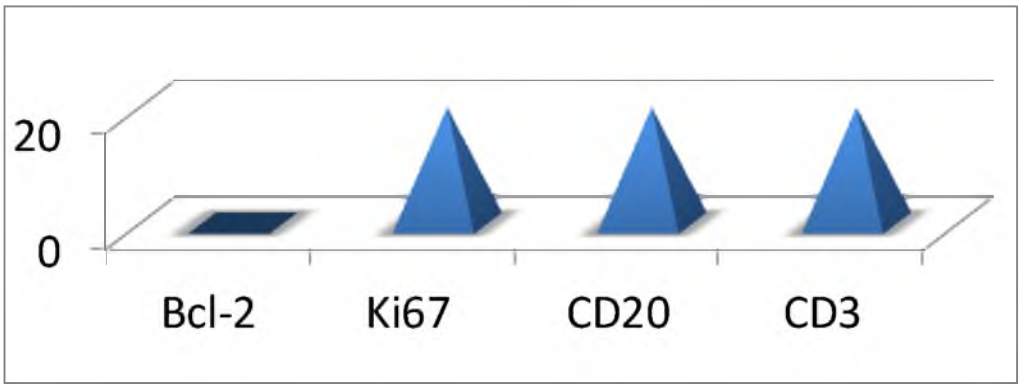
Fig.3. Positive reaction of CD3 reagent to liver T-lymphocytes in intrahepatic cholestasis. The Dab coloring is chromogenic. Lens 20-Eyepiece 40.

ISSN 2181-1954. EISSN 2181-1962

Summarizing the results of an immunohistochemical study of patients with intrahepatic cholestasis, the results of the Ki-67 reagent show that in all patients, the results of a mild positive reaction due to severe inflammation were observed in 1-8%. Bcl-2 reagent test showed a negative reaction in all patients. The results of tests with CD20 and CD3 reagents showed that in intrahepatic cholestasis against the background of severe inflammation, a high concentration of lymphocytes around hepatocytes was observed, and all 20 patients had positive reactions to CD20 and CD3 reagents.

Diagram 1.

Results of immunohistochemical study in intrahepatic cholestasis №20



Immunohistochemical changes in preeclampsia

Ki-67 is a sign of cell proliferative activity. Liver changes in patients who died from preeclampsia were assessed as low proliferative activity up to 10%, moderate proliferative activity 10-20% and high proliferative activity more than 20%. This reagent is a reagent that indicates additional disease prognosis. All 20 selected patients had indicators of Ki-67 proliferative activity in the range of 1-6 percent. Medium and high proliferative values were not found in the study.

Bcl-2 is a protein reagent that prevents natural apoptosis. These reagent scores were evaluated using both positive and negative scores. Liver changes in patients who died as a result of preeclampsia were 100% negative in all 20 patients examined with this reagent.

The level of inflammation of the liver **CD20** was assessed by the activation and proliferation of B-lymphocytes. These reagent values were determined by positive and negative values. Positive reaction results were detected in all 20 selected patients. Chronic inflammation of the liver in patients who died from preeclampsia indicates an increase in the number of lymphocytes.

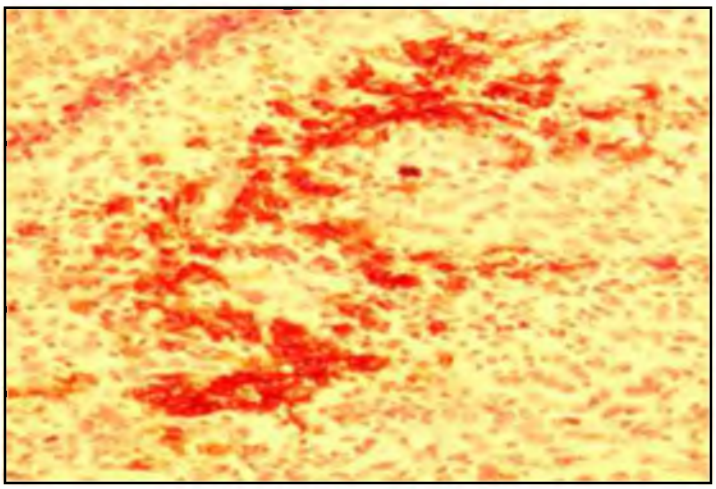


Fig.4. Positive reaction of the CD3 reagent for liver T-lymphocytes in preeclampsia. The Dab coloring is chromogenic. Lens 20-Eyepiece 40.

ISSN 2181-1954. EISSN 2181-1962

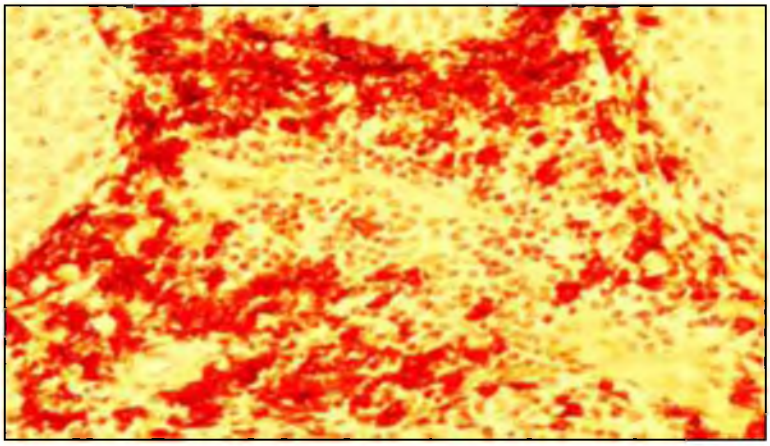


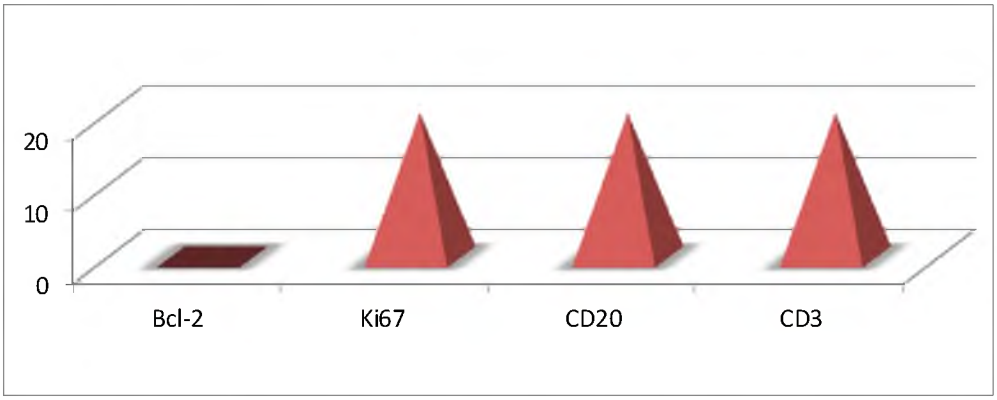
Fig.5. Positive reaction of the CD20 reagent for liver B-lymphocytes in preeclampsia. The Dab coloring is chromogenic. Lens 20-Eyepiece 40.

CD3 is a cell complex that exhibits the main level of activity of T-lymphocytes. These reagents were evaluated positively and negatively. Positive reaction results were detected in all 20 selected patients with preeclampsia.

When summarizing the results of an immunohistochemical study of patients with preeclampsia, the results of the Ki-67 reagent showed that all patients had mild positive results, i.e. up to 1-8%, there are no medium and high positive results. Bcl-2 reagent test showed a negative reaction in all patients. The results of tests with CD20 and CD3 reagents showed that in preeclampsia, a high concentration of lymphocytes around hepatocytes, leading to a strong inflammatory process around hepatocytes, led to a positive reaction to CD20 and CD3 reagents in all 20 patients.

Diagram 2.

Results of immunohistochemical study in preeclampsia №20



Immunohistochemical changes in fatty liver disease

Ki-67 is a marker of cell proliferative activity, and changes in the liver of patients who died from fatty liver disease have been estimated as up to 10% with low proliferative activity, 10-20% with medium proliferative activity, and more than 20% with high proliferative activity. The results of the study of the proliferative activity of Ki-67 in the range of 2-8% were detected in all 20 selected patients. Medium and high proliferative values were not found in the study.

Results of a study with Bcl-2, a protein reagent that prevents natural apoptosis. These reagents were evaluated positively and negatively. This reagent was used to evaluate liver changes in patients who died from fatty liver hepatosis, and in all 20 patients, 100% of the results were negative.

The level of CD20 in the liver is assessed by an increase in B-lymphocytes. The indicators of this reagent were determined through positive and negative indicators. All 20 selected patients showed positive reaction stages. Chronic inflammation of the liver in patients who died from hepatic-fatty hepatosis is associated with an increase in the number of lymphocytes and liver failure in patients with hepatocyte dysfunction.

ISSN 2181-1954. EISSN 2181-1962

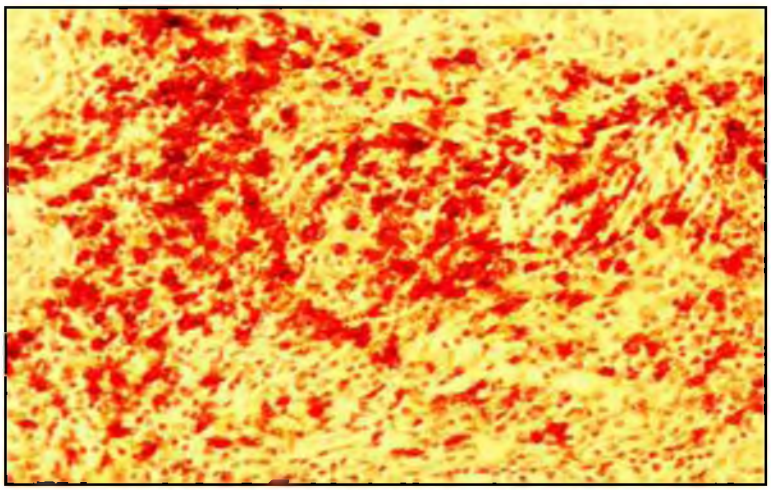


Fig.6. Positive reaction of the CD20 reagent for liver B-lymphocytes in fatty liver. The Dab coloring is chromogenic. Lens 20-Eyepiece 40.

In the cell complex, indicating the main level of activity of CD3 T-lymphocytes, the values of this reagent were assessed by positive and negative indicators. Positive reactions were found in all 20 selected patients with fatty liver hepatosis, mainly due to the accumulation of a large number of lymphocytes around hepatocytes due to severe inflammation.

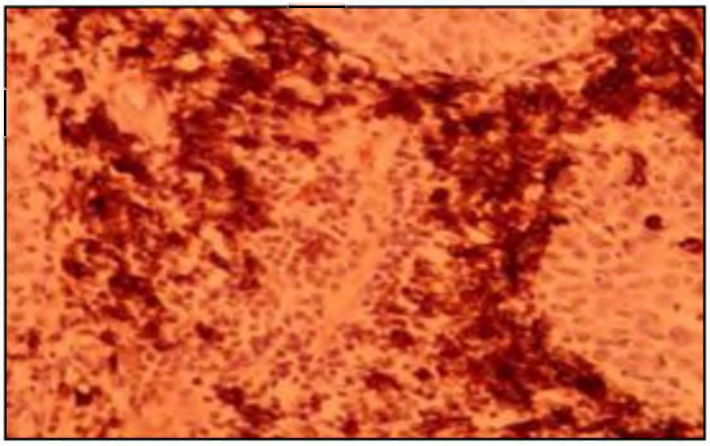
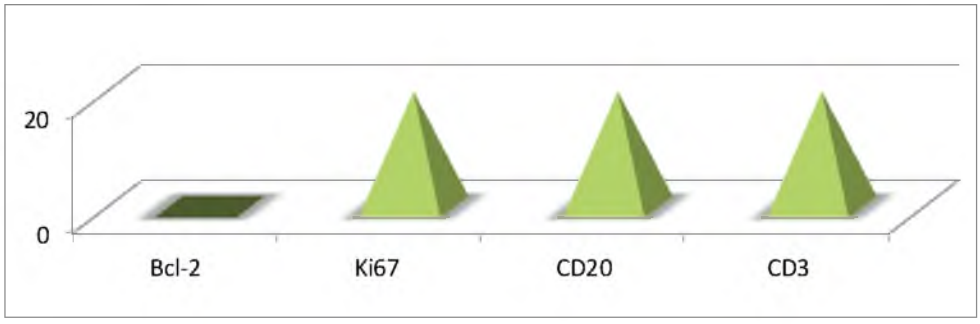


Fig.7. Positive reaction of the CD3 reagent for liver T-lymphocytes in fatty liver. The Dab coloring is chromogenic. Lens 20-Eyepiece 40.

In an immunohistochemical study of patients with fatty hepatosis, it was concluded that intrahepatic cholestasis and preeclampsia, as well as the Ki-67 reagent, showed a low positive response rate of 2-8% in all patients, and high results of positive reactions were not observed. Bcl-2 reagent test was negative in all patients. Samples with CD20 and CD3 reagents showed a positive reaction of CD20 and CD3 reagents in all patients due to a high inflammatory process of lymphocytes around hepatocytes in hepatic fatty hepatosis.

Diagram 3.

The results of immunohistochemical study in fatty liver №20.



ISSN 2181-1954. EISSN 2181-1962

Conclusion

The major diseases leading to liver failure in and resulting in maternal mortality include intrahepatic cholestasis, preeclampsia, and death due to fatty liver disease, which are currently seen in many. Liver failure is the leading cause of death. Our main goal was to study changes in the liver during immunohistochemical studies using Ki-67, Bcl-2, CD20 and CD3 reagents. The results of the study using the Ki-67 reagent showed that all patients had results with a low positive response rate of up to 2-8%, while there were no results with a medium and high positive response rate. As a result of the study conducted using the Bcl-2 reagent, all patients had negative reaction results, while 3 groups did not show any positive reaction results. Studies conducted with CD20 and CD3 reagents showed that in all three groups, a large number of lymphocytes accumulate around hepatocytes due to strong foci of inflammation and, as a result, makes it difficult for hepatocytes to perform their function and, as a result, leads to liver failure, which is one of the leading causes of maternal death.

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Entered 09.03.202

ISSN 2181-1954. EISSN 2181-1962