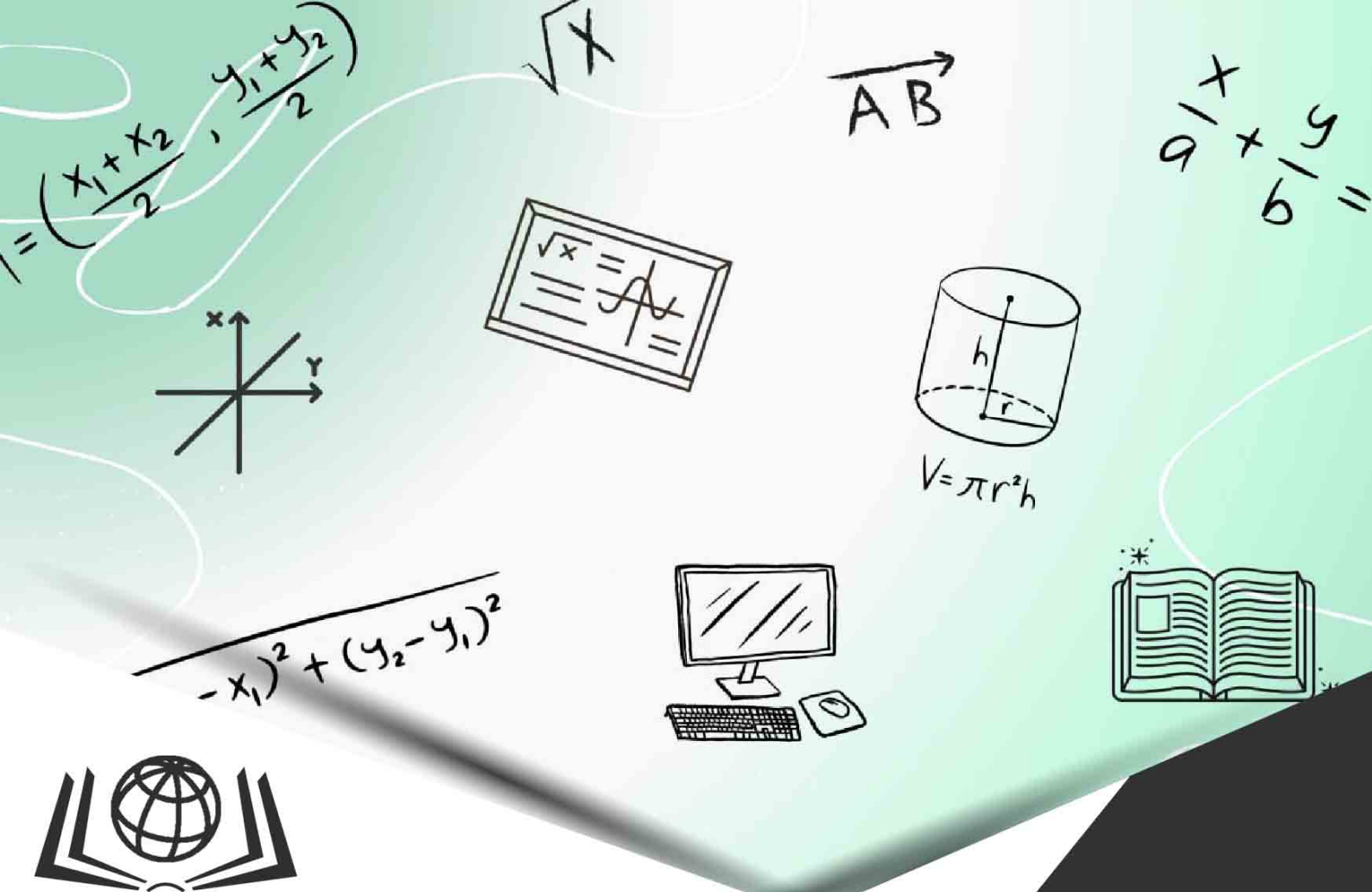




International Science Group

ISG-KONF.COM

XX

INTERNATIONAL SCIENTIFIC
AND PRACTICAL CONFERENCE
«INNOVATIVE SCIENTIFIC RESEARCH: LATEST
THEORIES, MODERN METHODS AND PRACTICES»

Seville, Spain

May 20 – 23, 2025

ISBN 979-8-89692-711-2

DOI 10.46299/ISG.2025.1.20

57.	Shuliatnikova T., Tumanskyi V., Tumanska L. PREDICTIVE VALUE OF THE CEREBELLAR AMMONIA LEVEL IN THE DECEASED CIRRHOTIC PATIENTS FOR PROBABILITY OF INTRAVITAL HEPATIC ENCEPHALOPATHY	283
58.	Talantova M.T., Seitkamza A.A., Tileugabyl Z.K., Zinovyev I., Akhmetzhanov D.D. DRY EYE SYNDROME: MODERN METHODS OF DIAGNOSIS AND TREATMENT	285
59.	Іванова М.В., Білоус О.С. ВИКОРИСТАННЯ СУЧАСНИХ ТЕХНОЛОГІЙ ДЛЯ МЕДИЧНОГО ЗАБЕЗПЕЧЕННЯ В ЕКСТРЕМАЛЬНИХ УМОВАХ	290
60.	Булеза В.В. ВИКОРИСТАННЯ АЛГОРИТМІВ ШТУЧНОГО ІНТЕЛЕКТУ ДЛЯ ДІАГНОСТИКИ ТА ПРОГНОЗУВАННЯ ЕФЕКТИВНОСТІ ЕНДОДОНТИЧНОГО ЛІКУВАННЯ НА ОСНОВІ ДАНИХ КЛКТ	293
61.	Горзов А.П. ПОРІВНЯННЯ ПРЯМОГО ДРУК ЕЛАЙНЕРІВ ТА КЛАСИЧНОГО ТЕРМОФОРМУВАННЯ	297
62.	Коропець В.В., Кравченко Т.Ю., Браткова Л.Б., Павлова В.В., Папінко Р.М. ВАКЦИНАЦІЯ ДІТЕЙ 2023 РОКУ НАРОДЖЕННЯ В ОДЕСІ НА ПРИКЛАДІ ОДНІЄЇ ДІЛЬНИЦІ: АНАЛІЗ ОХОПЛЕННЯ ТА ВІДМОВ	300
63.	Новохатська Д.Є., Білошапка А.В., Овчар А.В., Ковальова Ю.О. АЛЕРГЕНСПЕЦИФІЧНА ІМУНОТЕРАПІЯ ПРИ АЛЕРГІЧНОМУ РИНІТІ	303
64.	Юрченко В.В., Тихолаз В.О. РЕАБІЛІТАЦІЯ ПАЦІЄНТІВ З КОНТУЗІЄЮ ПРИ МІННО-ВИБУХОВИХ ТРАВМАХ	307
METALLURGY		
65.	Fon-Pruss M. THE EFFECT OF COMPLEX MODIFICATION ON REDUCING THE NEGATIVE IMPACT OF IRON IN SILUMINES	310

PREDICTIVE VALUE OF THE CEREBELLAR AMMONIA LEVEL IN THE DECEASED CIRRHOTIC PATIENTS FOR PROBABILITY OF INTRAVITAL HEPATIC ENCEPHALOPATHY

Shuliatnikova Tetiana

MD, PhD., Associate Professor
Zaporizhzhia State Medical and Pharmaceutical University

Tumanskyi Valerii

MD, DSc, Professor
Zaporizhzhia State Medical and Pharmaceutical University

Tumanska Liubov

MD, PhD., Associate Professor
Zaporizhzhia State Medical and Pharmaceutical University

One of the most severe complications of decompensated liver cirrhosis (LC) is hepatic encephalopathy (HE) type C, which worsens the prognosis of patient's survival significantly [1]. Pathological diagnosis of HE is not developed and only can be proposed by the exclusion of other causes of brain failure [2]. Hyperammonemia and brain ammonia play the central role in the morphogenesis of HE and stimulates significant changes to the neurogliovascular unit (NVU) leading to HE symptoms [3]. As has been shown in our previous study [4], brain tissue ammonia level correlates with specific neuropathological changes, including Alzheimer type 2-astrocytosis [5]. For assessment of the predictive value of postmortem brain ammonia level for the probability of intravital manifestations of HE, logistic regression analysis with ROC curves and the determination of the cutoff threshold was used. The median levels of optical density of HC ammonia precipitates expressed in CUOD (according to Gutiérrez-de-Juan V. method of the morphological determination of ammonia in the paraffin slices [6]) in the postmortem cerebellar tissue of 90 deceased patients with LC of compensated, subcompensated and decompensated stage (according Child-Pugh score) were analyzed for the presence or absence of HE Grade 1-4 intravital symptoms or the clinical diagnosis of HE in their medical cards. According to the ROC analysis, the postmortem median HC ammonia level in the cerebellar tissue > 32.65 CUOD indicated a statistically significant probability (sensitivity = 85.71 %, specificity = 76.47 %, AUC=0.834, $p<0.001$) of the presence of clinical signs of HE Grade 1-4 during patient's lifetime. Based on the results obtained, the level of postmortem cerebellar tissue ammonia can be used for the postmortem diagnosis of the overt HE type C, although, reliable pathological diagnosis of HE requires evaluation of the complex additional morphological ammonia-associated changes of the brain and clinical-anatomical matching.

Reference:

1. Bohra, A., Worland, T., Hui, S., Terbah, R., Farrell, A., & Robertson, M. (2020). Prognostic significance of hepatic encephalopathy in patients with cirrhosis treated with current standards of care. *World journal of gastroenterology*, 26(18), 2221–2231. <https://doi.org/10.3748/wjg.v26.i18.2221>
2. Shulyatnikova, T.V., Tumanskiy, V.O., Tumanska, L.M. (2024). Pathomorphology of severe grade 3-4 hepatic encephalopathy in decompensated cirrhosis patients with acute-on-chronic liver failure. *Medicni perspektivi*. 2024;29(2):62-71. <https://doi.org/10.26641/2307-0404.2024.2.307482>
3. Gallego-Durán, R., Hadjihambi, A., Ampuero, J., Rose, C. F., Jalan, R., & Romero-Gómez, M. (2024). Ammonia-induced stress response in liver disease progression and hepatic encephalopathy. *Nature reviews. Gastroenterology & hepatology*, 21(11), 774–791. <https://doi.org/10.1038/s41575-024-00970-9>
4. Shulyatnikova, T. & Tumanskiy, V. (2023). Ammonia level and Alzheimer type 2 astrocytes in the brain of deceased patients with liver cirrhosis of the varying degree. *Pathologia*. 20(1), 36-44. <https://doi.org/10.14739/2310-1237.2023.1.276453>
5. Agarwal, A. N., & Mais, D. D. (2019). Sensitivity and Specificity of Alzheimer Type II Astrocytes in Hepatic Encephalopathy. *Archives of pathology & laboratory medicine*, 143(10), 1256–1258. <https://doi.org/10.5858/arpa.2018-0455-OA>
6. Gutiérrez-de-Juan, V., López de Davalillo, S., Fernández-Ramos, D., Barbier-Torres, L., Zubiete-Franco, I., Fernández-Tussy, P., Simon, J., Lopitz-Otsoa, F., de Las Heras, J., Iruzubieta, P., Arias-Loste, M. T., Villa, E., Crespo, J., Andrade, R., Lucena, M. I., Varela-Rey, M., Lu, S. C., Mato, J. M., Delgado, T. C., & Martínez-Chantar, M. L. (2017). A morphological method for ammonia detection in liver. *PloS one*, 12(3), e0173914. <https://doi.org/10.1371/journal.pone.0173914>