СЕКЦІЯ ЕКСПЕРИМЕНТАЛЬНОЇ МЕДИЦИНИ

FEATURES OF THE SPECIES COMPOSITION OF PATHOGENS SUPPURATIVE INFLAMMATORY PROCESSES IN PATIENTS OF SURGICAL DEPARTMENT OF TERNOPIL UNIVERSITY HOSPITAL

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Introduction: Nowadays the risk of purulent-inflammatory infections of postsurgical wounds is remained in the spotlight among health care practitioners. After all, postoperative complications are the reason for a longer and more expensive treatment of surgical diseases, and an increase in mortality. According to the WHO (2014) report, the resistance of microorganisms to antibiotics is one of the most significant problems and the most serious threats to human health

Aim: The studying of bacterial species of pathogens isolated from postsurgical wounds in patients of surgical departments of Ternopil University Hospitalin 2018, with further analysis of their succeptibility to antibiotics.

Materials: The samples were taken from postsurgical wounds, trophiculcers, polytraumatic injures and were carried out before the antibiotic therapy.

Methods: Species of microorganisms were identified according to standard methods. Determination of the susceptibility of isolates to antibiotics was carried out by Kirbi-Bauer method using antibiotic disks (HiMedia, India). WHO-NET 5. 1 program was used for statistic on the spectrum of microorganisms and their susceptibility to antibiotics.

Results: 66 bacterial strains were isolated, 54. 5% of them were gram-positive cocci. Most of cocci belong to *S. aureus* – 87. 2% (34 isolates); 7. 7 % – to *S. saprophyticus* (3), *S. epidermidis* – 5. 1% (2). Gram negative microorganisms were represented by enterobacteria and nonfermented rod-shapedmicrobes. Almost a quarterofthemwerenonfermentingrod (16); 68,8 %isolates of them were*A. baumannii*(11) and 7,6% – *P. aeruginosa*(5). Enterobacteriawereisolatedin16. 7% cases: *K. pneumoniae* (6), *E. aerogenes* (4), *E. Coli* (1). All of isolated cocci were succeptible to rifampicin, gentimicin and levofloxacin, 66. 7%-87. 5% tomoxifloxacin, ciprofloxacin, norfloxacin, offloxacin, klindamicin, clarithromycin; and resistance to azitromycin, vancomycin, oxacilin and ertapenem. *P. aeruginosa* were succeptible to meropenem, ciprofloxacin, gatifloxacin, levofloxacin, ceftazidim, cephepim; andresistanttocephaloperazoneandamykacin. 100 % of *A. baumannii* isolates were resistant to amikatsin, cefepim, ceftazidim, ciprofloxacin, levofloxacin, gatifloxacin, gentamicin, imipenem, piperacilin, tazobactam, tobramicin, tikartsilin. All isolates of *Enterobacteria* were resistant to ciprofloxacin, gentamicin, 50%-66. 7% ofthem – toceftazidime, cefoperazone, levofloxacin, ерутапенем, meropenem, gatifloxacin, amikacin.

Conclusion: Thus, the monitoring of a bacterial succeptibility to antibiotics to prevent the development of their multiresistance should be done. The dominant microorganisms isolated from patients of surgical departments were both grampositive *S. aureus* and gram-negative *A. baumannii*, which should be taken into account when using antibiotics.

ANTIFUNGAL ACTIVITY OF AMPICILLIN-CHITOSAN-MAGNETITE NANOPARTICLES

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Relevance: It is known that broad spectrum antibiotics can cause dysbiosis and candidiasis as side effects. The question is how to preserve the antibacterial properties of these agents and at the same time to prevent the development of fungal infections. Most often, this is achieved by combining with antifungal agents, but there are other possibilities, including those related to iron oxide (II, III), or magnetite, nanoparticles (NPs).

The purpose of the work: is to study the antifungal properties of magnetite NPs conjugated with ampicillin and stabilized with polyvinylpyrrolidone (PVP) or chitosan.

Materials and methods: A composite NPs with an antibiotic was constructed by the use of initial magnetite NPs 5-8 nm of size obtained by precipitation of the steam flow of iron in sodium chloride crystals in vacuum. They were stabilized with 3% solution of PVP or 1% chitosan solution and conjugated with ampicillin (50 mg / ml). Composite NPs isolated from solutions by magnetic sedimentation were investigated. The hydrodynamic size of the NPs was determined by the method of laser correlation spectroscopy. Their antifungal activity was studied by the standard serial dilutions method using a reference strain of *Candida albicans* ATCC 10231 and a clinical isolate of *Candida albicans*.

Results: It is shown that in the samples with ampicillin an average hydrodynamic size of particles is 640 nm (with PVP) or 410 nm (with chitosan). It is found that magnetite NPs, stabilized by PVP and loaded with beta-lactam antibiotic, did not inhibit the growth of test cultures of the standard strain *Candida albicans* ATCC 10231 and the clinical isolate of *Candida albicans*. At the same time, if chitosan was used to stabilize the NPs, these particles have antifungal activity with a minimum fungistatic concentration within the range of 10-5. 5 μg / ml. It does not significantly differ for the standard strain and clinical isolate of *Candida albicans.*

Conclusions: Consequently, there are reasons to believe that the antifungal effect of composite NPs with ampicillin and chitosan is due to chitosan in the composition of these particles, which itself has antifungal properties. Such pharmacological agent can provide both the usual antibacterial effect of ampicillin and prevent the development of candidiasis.

TO THE QUESTION ABOUT HUMAN TYPOLOGICAL ASPECTS THEORETICAL AND APPLIED SIGNIFICANCE ON THE BASIS OF LITERARY AND OWN DATA

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The topic actuality. The most important human typological aspects are assessed under physiological and pathological conditions, in theoretical and applied disciplines, in the Earth various areas.

Age typological aspect actuality is described by the fact that students represent separate age category, diseases age peculiarities for instance developmental dyscalculia in children; ethno-gender-age - in the work about Iranian boys with autism (R. Nasiri et al., 2017). Health control locus was studied in Poland at heart failure, at thyroid diseases; internalizing symptoms and disorders - with ethno-age aspect in Australian adolescents. Externalizing and internalizing problems in boys and girls pre-adolescents were different in both genders but there was a correlation between temperament type and psychopathology in Netherlands. Iranian scientists devoted their works to internalizing (M. A. Fallahnejad et al., 2017) and externalizing (S. Azimifar et al., 2018) behavior in primary school children. There is association between temperament type with extra- and intaversion and health problems in Iranian male and female students; temperament also can influence on coping with interparental conflicts; there are temperament specific classifications in Persian medicine: brain temperament (H. Salmannegad et al., 2016), of warmth and humidity (Gh. R. Mohammadi Farsani et al., 2017). Genes of left-handedness are absent in Dutch population. British biologists assessed links between cerebral lateralization and developmental language disorder in children (A. C. Wilson et al., 2018). Scientists are still not sure about apraxy dominance either in lefties or dextrals. Norwegian scientists found the dependence between autism and left-handedness and ambidextrism (A. L. Rysstad et al., 2018).

Our work **aim**: assessing the personality neurodynamic peculiarities and cognitive style parameters in UMSA foreign students dependently on their interhemispherical asymmetry individual profile.

Investigative methods: 1) classical probes (by Louria); 2) Eysenck's questionnaire; 3) questionnaire for behavioural strategies assessing; 4) survey.

Results. Melancholics were dominant among sinisters, sanguinics – among dexters, melancholics - among ambidexters at sanguinics and phlegmatics complete absence. Defense strategy was dominant among sinisters and ambidexters, coping – dexters. Left-handers and ambidexters had mainly control external locus while dexters – the internal one.

Conclusion. Thus, human typologies contribute much in health and disease and their study must be in a process in Science different branches as well as in the Earth various areas.

РЕАКЦІЯ КРОВІ НА ОПРОМІНЕННЯ

BLOOD RESPONSE TO DISEASE

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Актуальність: радіоактивне забруднення в кількості, що перевищує допустиму дозу, посідає особливе місце у сфері забруднення довкілля. Серед основних джерел радіоактивних забруднень є місця перероблення й поховання радіоактивних відходів. Одним із таких регіонів, де нагромадження значної кількості екологічних проблем створює потенційну загрозу безпеці життя і діяльності населення, є Кіровоградська область. На її території знаходиться потужно розвинений промисловий потенціал, що зумовлює радіаційне навантаження на організм людини .

Мета роботи: дослідити реакцію крові людини на опромінення.

Матеріали та методи: теоретичні: аналіз, систематизація, порівняння та узагальнення результатів аналізу наукової літератури з проблеми дослідження.

Результати: механізм пошкодження радіацією універсальний для всіх клітин організму. Він полягає у зміні структури біомолекул і виникненні та поглибленні радіоіндукованого окислювального стресу. Система крові виконує транспортну функцію і забезпечує сталість організму. Її унікальність полягає у тому, що патологічні зміни, які виникають за розвитку функціональних порушень інших органів і систем організму, по різному впливають на кількісний і якісний склад. Висока здатність клітин крові до поділу обумовлює її високу чутливість до дії іонізуючих випромінювань. Тому є важливим вивчення показників крові та виявлення закономірностей їхніх змін за впливу опромінення.

Зі збільшенням дози опромінення раніше наступає зменшення кількості формених елементів. Порівняно невеликі дози (2-10 Гр) в момент опромінення викликають загибель клітин кісткового мозку, а також втрачають здатність до поділу . Блокування кровотворення після опромінення за час одного клітинного циклу призводить до поступового припинення надходження нових зрілих клітин з червоного кісткового мозку в кров. Проте клітини продовжують надходити в кров, поки не вичерпаються. Звісно, зменшення зрілих формених елементів в крові відбува-