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ISPITIVANJE REZISTENCIJE BAKTERIJA IZOLOVANIH IZ VAGINALNIH BRISEVA KUJA - IZAZOV SAVREMENE ANTIBIOTSKE TERAPIJE

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Kratak sadržaj

Antimikrobna rezistencija predstavlja jedan od najvažnijih problema savremene veterinarske prakse, kako zbog otežanog terapijskog pristupa, tako i zbog mogućnosti širenja rezistentnih bakterija i gena rezistencije u populaciji životinja i ljudi. Bakterijske infekcije reproduktivnog trakta kuja mogu biti udružene sa različitim kliničkim poremećajima, uključujući vaginitis, endometritis, smanjenu plodnost i druge poremećaje reproduktivne funkcije, zbog čega izbor adekvatne terapije zahteva poznavanje lokalnih obrazaca rezistencije. Cilj ovog istraživanja bio je da se utvrdi zastupljenost bakterijskih izolata i njihov profil antimikrobne rezistencije iz vaginalnih briseva kuja u periodu od 2020. do 2024. godine. U istraživanje je bilo uključeno 215 bakterijskih izolata, koji su izolovani iz vaginalnih briseva kuja. Izolacija i identifikacija bakterija izvršene su standardnim mikrobiološkim metodama, dok je osetljivost prema antimikrobnim lekovima ispitana metodom disk difuzije u skladu sa smernicama Instituta za laboratorijske i kliničke standarde (Clinical and Laboratory Standards Institute – CLSI). Najčešće izolovane bakterije bile su *Staphylococcus pseudintermedius* (41,9%), *Streptococcus canis* (22,8%) i *Escherichia coli* (21,4%), dok su ređe bile *Pasteurella multocida* (5,1%), *Proteus mirabilis* (3,7%), *Enterococcus fecalis* i *Klebsiella pneumoniae*. Najveća prevalencija rezistencije bila je kod penicilina (63,3%) i eritromicina (58,4%), zatim kod streptomicina (42,3%), enrofloksacina (37,2%) i tetraciklina (35,3%). Rezistencija prema amoksicilinu detektovana je kod 22,8% izolata, gentamicinu 20,9% izolata i hloramfenikolu 13,6% izolata. Od 215 ispitanih izolata 173 izolata (80,5%) je pokazalo multirezistentan profil – MDR (rezistentni na ≥3 klase antibiotika), a 6 izolata (3%) je klasifikovano kao PDR – (rezistentni na sve ispitane klase antibiotika) gde je izolovana *Escherichia coli*. Visoka prevalencija multirezistentnih izolata ukazuje na potrebu za kontinuiranim praćenjem antimikrobne rezistencije u kliničkoj veterinarskoj praksi i pažljivim izborom terapijskih protokola. Dobijeni rezultati potvrđuju značaj antibiograma kao osnove

za izbor terapije i ukazuju na potrebu za racionalnom upotrebom antibiotika u cilju očuvanja njihove efikasnosti i smanjenja nastanka i širenja rezistencije.

Ključne reči: antimikrobna rezistencija, bakterijske infekcije, disk difuzija, pas, vaginalni bris

Zahvalnica

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ANTIMICROBIAL RESISTANCE OF BACTERIA ISOLATED FROM VAGINAL SWABS OF BITCHES – A CHALLENGE FOR MODERN ANTIBIOTIC THERAPY

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Summary

Antimicrobial resistance is one of the most significant challenges in contemporary veterinary medicine due to both the increasing difficulty of treating bacterial infections and the potential spread of resistant bacteria and resistance genes among animal and human populations. Bacterial infections of the reproductive tract in bitches are associated with various clinical disorders, including vaginitis, endometritis, reduced fertility, and other reproductive dysfunctions. Therefore, selecting appropriate antimicrobial therapy requires knowledge of local antimicrobial resistance patterns. The aim of this study was to determine the prevalence of bacterial isolates and their antimicrobial resistance profiles from vaginal swabs of bitches collected between 2020 and 2024. A total of 215 bacterial isolates obtained from vaginal swabs of bitches were included in the study. Bacterial isolation and identification were performed using standard microbiological methods, while antimicrobial susceptibility testing was carried out using the disk diffusion method in accordance with the guidelines of the Clinical and Laboratory Standards Institute (CLSI).The most frequently isolated bacterial species were *Staphylococcus pseudintermedius* (41.9%), *Streptococcus canis* (22.8%), and *Escherichia coli* (21.4%), whereas *Pasteurella multocida* (5.1%), *Proteus mirabilis* (3.7%), *Enterococcus faecalis*, and *Klebsiella pneumoniae* were isolated less frequently. The highest prevalence of resistance was observed to penicillin (63.3%) and erythromycin (58.4%), followed by streptomycin (42.3%), enrofloxacin (37.2%), and tetracycline (35.3%). Resistance to amoxicillin was detected in 22.8% of isolates, gentamicin in 20.9%, and chloramphenicol in 13.6%.Of the 215 isolates examined, 173 (80.5%) exhibited a multidrug-resistant (MDR) phenotype, defined as resistance to three or

more classes of antimicrobial agents, while six isolates (3.0%) were classified as pandrug-resistant (PDR), exhibiting resistance to all antimicrobial classes tested; all PDR isolates were identified as *Escherichia coli*. The high prevalence of multidrug-resistant isolates highlights the need for continuous surveillance of antimicrobial resistance in clinical veterinary practice and careful selection of therapeutic protocols. The obtained results confirm the importance of antimicrobial susceptibility testing (antibiograms) as the basis for selecting appropriate therapy and emphasize the need for prudent antibiotic use to preserve their efficacy and reduce the emergence and spread of antimicrobial resistance.

Keywords: antimicrobial resistance, bacterial infections, disk diffusion, dog, vaginal swab

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