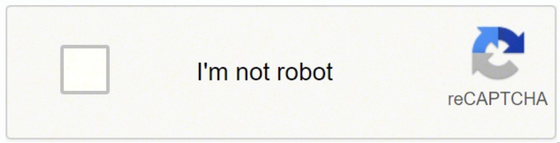
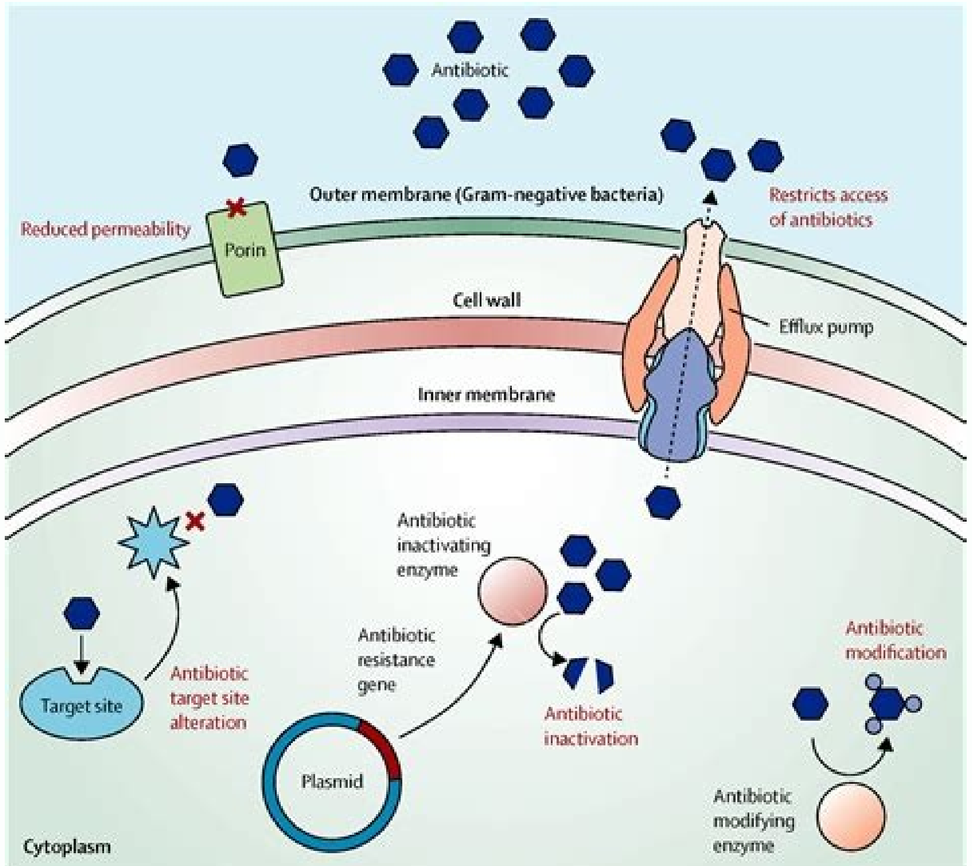


Next

Pseudomonas aeruginosa antibiotic resistance pdf



Альманах клинической медицины № 28'2013

АНТИБИОТИКОРЕЗИСТЕНТНОСТЬ ШТАММОВ *PSEUDOMONAS AERUGINOSA* С РАЗНОЙ СПОСОБНОСТЬЮ К СИНТЕЗУ ПИОЦИАНИНА

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Определена чувствительность штаммов *P. aeruginosa* с разной способностью к синтезу пиоцианина к применяемым антибиотикам: карбенициллину, левофлоксацину, ципрофлоксацину, цефоперазону, имипенему, меропенему, амикацину и гентамицину. Обнаружена умеренная взаимосвязь между пигментообразованием и чувствительностью к антибиотикам для большинства препаратов и тесная – для аминогликозидов.

Ключевые слова: *P. aeruginosa*, антибиотикорезистентность, пигментообразование.

ANTIBIOTIC RESISTANCE OF PSEUDOMONAS AERUGINOSA STRAINS WITH DIFFERENT PIGMENT PRODUCTION ABILITY

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The sensitivity to different clinical antibiotics of *P. aeruginosa* strains with different ability for pigment production (Carbenicillin, Levofloxacin, Ciprofloxacin, Cefoperazone, Imipenem, Meronenem, Amikacin, Gentamicin) has been determined. The moderate statistical association between chromogenesis and sensitivity to antibiotics for the majority of preparations has been found out, close correlation being noted for aminoglycosides.

Key words: *P. aeruginosa*, antibiotic resistance, chromogenesis.

Актуальной темой современной медицины остаются внутрибольничные инфекции. Ведущее место в их общей структуре занимает синегнойная инфекция, возбудителем которой является *P. aeruginosa*. В последние 10 лет прослеживается тенденция к увеличению удельного веса заболеваний, вызванных этим микроорганизмом [3, 4, 5]. Нередко они характеризуются тяжелым течением и сопровождаются высокой летальностью. Широкое применение антибиотиков приводит к формированию резистентных штаммов, что значительно затрудняет проведение эмпирической терапии [1].

Одним из дифференциально-диагностических признаков, на который обращают внимание при микробиологической диагностике синегнойной инфекции, является способность микроорганизма синтезировать водорастворимый пигмент – пиоцианин. Это вещество относится к феназиновым соединениям, продуцируемым представителями рода *Pseudomonas*, и обладает широким спектром антибиотической активности, проявляющейся в отношении грамположительных, грамотрицательных микроорганизмов и грибков [9, 15]. Пиоцианин является одним из факторов вирулентности. В литературе имеются сведения о наличии прямой корреляции между способностью синтезировать пигмент и силой токсина пиоцианина и степенью ее патогенности. Инфекция, вызванная бесспи-

СОВРЕМЕННЫЕ ЛАБОРАТОРНЫЕ, КЛИНИЧЕСКИЕ И МЕДИКО-БИОЛОГИЧЕСКИЕ ИССЛЕДОВАНИЯ – ТЕОРИЯ И ПРАКТИКА

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ORIGINAL PAPER

The effects of active efflux pumps on antibiotic resistance in *Pseudomonas aeruginosa*

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Abstract In this study, we investigated the roles of active efflux pumps in antibiotic resistance. The transcription efflux pump genes were analyzed by real-time polymerase chain reaction (qPCR) to determine their role in drug resistance. Antibiotic sensitivity testing was carried out using the Vitek 2 automated system (bioMérieux, France). Isolates were divided into four groups according to their resistance status: multiple-drug resistant (MDR), isolated carbapenem resistant (ICR), isolated quinolone resistant (IQR), and carbapenems and quinolone resistant (CQR). Transcript levels of *mexB*, *mexD*, *mexF*, *and mexY* were analyzed by qPCR using a LightCycler instrument (Roche, Germany). The genetic similarity between isolates was determined using arbitrarily primed PCR (AP-PCR). Among the 50 isolates investigated, the frequency of genes classified as overexpressed were 88 % for *mexD*, 76 % for *mexB*, 46 % for *mexF*, and 40 % for *mexY*. Within the MDR group, *mexB* was overexpressed in 15 of 22 isolates, *mexD* in 20 of 22, *mexF* in 15 of 22, and *mexY* in 19 of 22. In the ICR group, isolates *mexB* and *mexD* were each overexpressed in five isolates. *mexD* overexpression was observed in all seven CQR isolates. Within the IQR group, *mexB* and *mexD* were overexpressed in all 12 isolates. *mexF* overexpression was detected in 7 of 12 isolates in this group. 18 distinct banding patterns were determined by AP-PCR. Increased transcription of *mexB* was directly correlated with meropenem resistance in the majority of isolates tested, while MexCD-OprJ and MexEF-OprN were related to quinolone resistance; the MexCD-OprJ efflux pump was also related to multidrug resistance. Increased transcription of *mexY* may contribute to the gentamicin resistance.

Keywords *Pseudomonas aeruginosa* · Resistance mechanism · Efflux pumps · qPCR · AP-PCR

Introduction

The rise of antibiotic resistance is an increasingly important threat, particularly for infections caused by *Pseudomonas aeruginosa*. One of the primary mechanisms driving this resistance is the overexpression of efflux pump systems, which enable resistance to a wide range of drugs with different constitutional features. (Strateva and Yordanov 2009)

The RND family of efflux pumps, including MexAB-OprM, MexCD-OprJ, MexEF-OprN, and MexXY-OprM, represent an important set of efflux systems in *P. aeruginosa*, with a broad range of drug specificities. MexAB-OprM was the first efflux pump found to target multiple classes of drugs, including fluoroquinolones, tetracyclines, chloramphenicol, β-lactams and β-lactamase inhibitors, macrolides, novobiocin, trimethoprim, and sulfonamides. (Kohler et al. 1996; Li et al. 1995, 1998). MexCD-OprJ exhibits a high degree of sequence similarity to MexAB-OprM, and has also been shown to extrude a variety of antimicrobial agents, including fluoroquinolones, β-lactams, chloramphenicol, tetracycline, novobiocin, trimethoprim, and macrolides (Poole et al. 1996). Other efflux pumps within this family exhibit more narrow spectra of activity; β-lactams are poor substrates for MexCD-OprJ

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RESEARCH ARTICLE Open Access

Pseudomonas aeruginosa β-lactamase induction requires two permeases, AmpG and AmpP

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Abstract

Background: In Enterobacteriaceae, β-lactam antibiotic resistance involves murein recycling intermediates. Murein recycling is a complex process with discrete steps taking place in the periplasm and the cytoplasm. The AmpG permease is critical to this process as it transports N-acetylglucosamine anhydrous N-acetylmuramyl peptides across the inner membrane. In Pseudomonadaceae, this intrinsic mechanism remains to be elucidated. Since the mechanism involves two cellular compartments, the characterization of transporters is crucial to establish the link.

Results: *Pseudomonas aeruginosa* PAO1 has two *ampG* paralogs, *PA4218* (*ampP*) and *PA4393* (*ampG*). Topology analysis using β-galactosidase and alkaline phosphatase fusions indicates *ampP* and *ampG* encode proteins which possess 10 and 14 transmembrane helices, respectively, that could potentially transport substrates. Both *ampP* and *ampG* are required for maximum expression of β-lactamase, but complementation and kinetic experiments suggest they act independently to play different roles. Mutation of *ampG* affects resistance to a subset of β-lactam antibiotics. Low-levels of β-lactamase induction occur independently of either *ampP* or *ampG*. Both *ampG* and *ampP* are the second members of two independent two-gene operons. Analysis of the *ampG* and *ampP* operon expression using β-galactosidase transcriptional fusions showed that in PAO1, *ampG* operon expression is β-lactam and *ampR*-independent, while *ampP* operon expression is β-lactam and *ampR*-dependent. β-lactam-dependent expression of the *ampP* operon and independent expression of the *ampG* operon is also dependent upon *ampP*.

Conclusions: In *P. aeruginosa*, β-lactamase induction occurs in at least three ways, induction at low β-lactam concentrations by an as yet uncharacterized pathway, at intermediate concentrations by an *ampP* and *ampG* dependent pathway, and at high concentrations where although both *ampP* and *ampG* play a role, *ampG* may be of greater importance. Both *ampP* and *ampG* are required for maximum induction. Similar to *ampC*, *ampP* expression is inducible in an *ampR*-dependent manner. Importantly, *ampP* expression is autoregulated and *ampP* also regulates expression of *ampG*. Both AmpG and AmpP have topologies consistent with functions in transport. Together, these data suggest that the mechanism of β-lactam resistance of *P. aeruginosa* is distinct from well characterized systems in Enterobacteriaceae and involves a highly complicated interaction between these putative permeases and known Amp proteins.

Background

***Pseudomonas aeruginosa* is a Gram negative opportunistic pathogen. As a frequent colonizer of catheters and the most frequent fatal causative agent of ventilator-assisted pneumonia, it is one of the most common agents in health-care associated infection [1]. Lung deterioration due to chronic infection by *P. aeruginosa* affects patients with chronic obstructive pulmonary disorder and is a leading cause of morbidity and mortality in cystic fibrosis patients [2]. *P. aeruginosa* infection treatment is often difficult because of the organism's intrinsic and acquired antibiotic resistance. This is due to the presence of multidrug efflux pumps [3], low outer membrane permeability [4], hypermutability [5], biofilm formation [6], and β-lactamase expression [7,8].**

***P. aeruginosa* has two chromosomally encoded β-lactamases: the PoxB oxacillinase and the AmpC cephalosporinase [8-10]. Much of what is known about**

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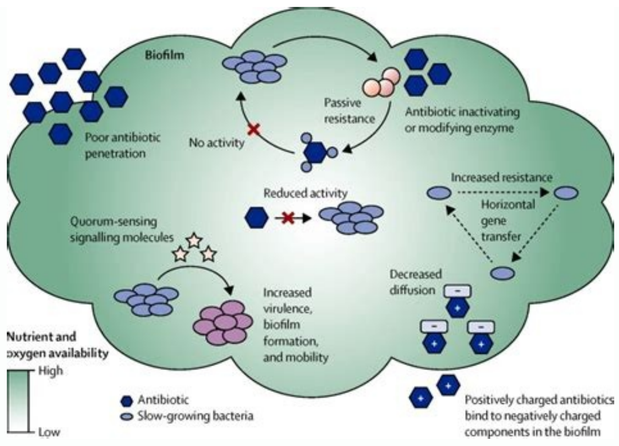

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1.Boucher H.W., George H., Talbot J. Bad bugs, sem drogas: sem ESKAPE! Uma atualizaÃ§Ã£o da sociedade de doenÃ§as infecciosas da AmÃ©rica. InfecÃ§Ã£o da ClÃnica. 2009; 48(1):1Ã¢ÂÂ12. [PubMed] [Google Scholar]2. Carlet J., Ben A.A., Tabah A. InfecÃ§Ãµes resistentes a medicamentos na UCI: mecanismos, prevenÃ§Ã£o e tratamento. In: Kuhlen R., Moreno R., Ranieri V.M., Rhodes A., editores. 25 Anos de Progresso e InovaÃ§Ã£o em Medicina Cuidadosa Intensiva. Medizinisch Wissenschaftliche Verlagsgesellschaft; Berlim, Alemanha: 2007. pp. 199a1. [Google Scholar]3. Esposito S., tratamento anti-microbiano Leone S. para infecÃ§Ãµes por unidade de cuidados intensivos (UCI), incluindo o papel do especialista em doenÃ§as infecciosas. Int J Agentes Antimicrob. 2007; 29:494Ã¢ÂÂ500. [PubMed] [Google Scholar]4. Ranjan N., Chaudhary U., Chaudhry D., Ranjan K.P. Ventilator associado pneumonia em uma unidade de cuidados terciÃ¡rios intensivos: anÃ¡lise de incidÃªncia, fatores de risco e mortalidade. Indian J Crit Care Med. 2007; 18:200Ã¢ÂÂ204. [Artigo livre do PMC] [PubMed] [Google Scholar]5. Moore L.S., Freeman R., Gilchrist M. Homogeneity of antimicrobial policy, yet heterogeneity of antimicrobial resistance: antimicrobial non-susceptibility among 108,717 clinical isolates from primary, secondary and tertiary care patients in London. J Antimicrob Chemother. 2014; 69(12):3409Ã¢ÂÂ3422. [Artigo livre do PMC] [PubMed] [Google Scholar]6. Santajit S., Indrawattana N. Mecanismos de resistÃªncia antimicrobiana nos agentes patogÃ©nicos da ESKAPE. Biomed Res Int. 2016:1Owendo8. [Artigo livre do PMC] [PubMed] [Google Scholar]7. Oie S., Fukui Y., Yamamoto M., Masuda Y., Kamiya A. In Ã Eb160; Efeitos antimicrobianos in vitro da aztreonam, colistin, e a combinaÃ§Ã£o 3-fÃ¡rmacos de aztreonam, ceftazidime e amikacin em metalo b-lactamase-produzindo Pseudomonas aeruginosa. InfecÃ§Ã£o de BMC. 2009; 9:123. [Artigo livre do PMC] [PubMed] [Google Scholar]8. Memar M.Y., Pormehrali R., Alizadeh N., Ghotaslou R., Baghi H.B. Colistin, uma for the treatment of pseudomonous aeruginosa resistant to drugs drugs. Physiol pharmacanutics. Physiol. [Google Scholar]9. Lamont I.L., Martin L.W. Identification and characterization of new pyoverdine synthesis genes in aeruginous Pseudomonas. Microbiol! 2003; 149(4):833´´842. [PubMed] [Google Scholar]10. Peix A., Ramirez-Bahena M.H. Historical evolution and current state of the taxonomy of the genus Pseudomonas. Infect Evol Genius. 2009; 9(6):1132´´1147. [PubMed] [Google Scholar]11. Trautmann M., Lepper P.M., Haller M. Aeruginous Pseudomonas Ecology in the intensive care unit and the evolutionary role of water outlets as reservoir of the organism. I am J Infect Contr. 2009; 33:S414141414141 Hah S49. [PubMed] [Google Scholar]12. Abreu P.M.D., Farias P.D., Paiva G.S., Almeida A.M., Vasconcelos P. Persistence of microbial communities, including aeruginous Pseudomonas in a hospital environment: a potential health risk. BMC Microbiol. 2017; 10:317â328. [PubMed] [Google Scholar]13. Engleberg N.C., Dermondy T.S. 4a ed. 2007. Lippincott Williams Wilkins. [Google Scholar]14. Roy F.C., Simmons S., Dale C. The role of the health environment in the propagation of crowd-resistant organisms: updating of current best practices for containment. Termapeut Adv Inf Dis. 2014; 2:79â90. [PubMed] [Google Scholar]15. Favero M.S., Carson L.A., Bond W.W., Petersen N.J. Aeruginous Pseudomonas: growth of distilled water from hospitals. Science. 1997; 173(999):836´´838. [PubMed] [Google Scholar]16. Kowalski R.P., Pandya A.N., Karenchak L.M. An inÃÂ NIC160; In vitro resistance study of levofloxacin, ciprofloxacin and ofloxacin using Staphylococcus aureus and Pseudomonas aeruginosa isolates. Ophthalmology. 2001; 108(10):1826Â¢Ã ¢1829. [PubMed] [Google Scholar]17. Kennedy A.M., Elward A.M., Fraser V.J. Research of knowledge, beliefs and practices of neonatal intensive care workers in nosocomial infections, care of central venous catheter, and manual hygiene. Epidemiol Infect Control Hosp. 2004;[PubMed] [Google Scholar]18. Magill S.S., S.S.J.R., Bamberg W. InquÃ©rito multiestatal de prevalÃªncia de infecÃ§Ãµes associadas a cuidados de saÃºde. N Engl J Med. 2014;370(13):1198Ã¢1208. [Artigo gratuito do PMC] [PubMed] [Google Scholar]19. Kritsotakis E.I., Kontopidou F., Astrinaki E., Roumbelaki M., Ioannidou E., Gikas A. PrevalÃªncia, carga de incidÃªncia e impacto clÃnico das infecÃ§Ãµes associadas aos cuidados de saÃºde e resistÃªncia antimicrobiana: um estudo de coorte nacional prevalecente em hospitais de cuidados agudos na GrÃ©cia. ResistÃªncia Ã s drogas infectadas. 2017 Oct 10;10:317Ã¢328. [Artigo gratuito do PMC] [PubMed] [Google Scholar]20. Thaden J.T., Park L.P., Maskarinec S.A., Ruffin F., Fowler V.G., Van Duin D. Os resultados de um estudo de coorte prospectivo de 13 anos mostram um aumento da mortalidade associada a infecÃ§Ãµes da corrente sanguÃnea causadas por Pseudomonas aeruginosa em comparaÃ§Ã£o com outras bactÃ©rias. Antimicrob Agents Chemother. 2017;24(61):2671Ã¢2716. [Artigo gratuito do PMC] [PubMed] [Google Scholar]21. Afshari A., Pagani L., Harbarth S. Ano em revista 2011: infecÃ§Ã£o de cuidados crÃticos. CritÃ©rios Cuidados. 2012;16:242. [Google Scholar]22. Hunter J.D. Ventilador associado Ã pneumonia. BMJ. 2012;344:40Ã¢44. [PubMed] [Google Scholar]23. Jarvis W.R., Schlosser J., Chinn R.Y., Tweeten S., Marguerite J. PrevalÃªncia nacional de Staphylococcus aureus resistente Ã meticilina em pacientes internados em centros de saÃºde dos EUA. Am J infectar cont. 2007;35(10):631Ã¢637. [PubMed] [Google Scholar]24. Tumbarello M., Pascale G.D., Trecarichi E.M. Resultados clÃnicos de Pseudomonas aeruginosa pneumonia em pacientes de unidades de cuidados intensivos. Intensive Care Med. 2013;39(4):682Ã¢692. [PubMed] [Google Scholar]25. Kollef M.H., Chastre J., Fagon J.Y. Estudo epidemiolÃ³gico prospectivo e de vigilÃ¢ncia global da pneumonia associada Ã ventilaÃ§Ã£o devido a Pseudomonas aeruginosa. CritÃ©rios Care Med. 2014;42(10):2178Ã¢2187. [PubMed] [Google Scholar]26. Crouch B.S., Wunderink R.G., Jones C.B., Leeper K.V., Jr. associated pneumonia due to Pseudomonas aeruginosa. Chest. 1986;109(4):1019Ã¢1029. [PubMed] [Google Scholar]27. Zhou Y., Yu H., Guo Q. Q. of 16S rRNA methylases between different species of Gram©-negative bacilli with high level of resistance to aminoglycosides. Eur J Clin Microbiol Infect Dis. 2010;29:1349Ã¢1353. [PubMed] [Google Scholar]28. Zhou Q.T., BSMed B.H., Zhu H. Potential cost savings in the treatment of patients hospitalized with pneumonia acquired in the low-risk community in China. Health Value. 2009;12(1):14Ã¢46. [PubMed] [Google Scholar]29. Raineri R., Porcella L., Acquarolo A., Crema L., Albertario F., Candiani A. Ventilator-associated pneumonia caused by Pseudomonas aeruginosa in the intensive care unit: epidemiology and risk factors. J Med Microbiol Diagn. 2014;3:149. [Google Scholar]30. Rello J., Ausina V., Puzo C., Quintana E., Net A., Prats G. Risk factors for Pseudomonas aeruginosa infection in patients with pneumonia associated with mechanical ventilation. Intensive Care Med. 1994;20(3):193Ã¢198. [PubMed] [Google Scholar]31. Leroy O., d'Escrivan T., Devos P., Dubreuil L., Kipnis E., Georges H. Hospital-acquired pneumonia in critical patients: factors associated with episons due to imipenem-resistant organisms. Infection. 2005;33(3):129Ã¢135. [PubMed] [Google Scholar]32. Nathwani D., Raman G., Sulham K., Gavaghan M., Menon V. Clinical and economic consequences of pseudomonas aeruginosa resistant and multidrug-resistant infections: a systemic review and meta-analysis. Antimicrob Resistant to Infecto Contr. 2014;3(1):32. [Free PMC article] [PubMed] [Google Scholar]33. Rello J., Borgatta B., Lagunes L. Management of Pseudomonas aeruginosa pneumonia: one size does not serve everyone. Care ©. 2014;18(2):136. [Free PMC article] [PubMed] [Google Scholar]34. Montero M., Sala M., Riu M. Risk factors for the acquisition of Pseudomonas aeruginosa multiresistant. Impact of the use of biotics in a double case control study. Eur J Clin Microbiol Infect Dis. 2010;29:335Ã¢339. [PubMed] [Google Scholar]35. Meier P. Urinary tract infections: many unresolved issues. Clin Microbiol Infect. Infect. [PubMed] [Google Academic] 36. Horde J.P., Shaw E., Padilla B. Infections of the bacterium urinary tract associated with health, acquired by the community and hospital in hospitalized patients: a prospective study of multicultural cohort in the age of antimicrobial resistance. Infected microbial clinic. 2013; 9: 962is "968. [PubMed] [Google Scholar] 37. BOUZA E., San Juan R., Muan Oz P., Your A., Kltmuyans J. A European perspective on urinary tract infections in our chamber I. Report on the workload of microbiology, etiology and antimicrobial susceptibility. Infected microbial clinic. 2001; 523-31[Med] [Google Academic] 38. Djordjevic Z., Folic M.m., Zivic Z., Markovic V., Jankovic S.M. Infections of the urinary tract in the chamber caused by airborne pseudomonas and foams © acinethbacter species: antibiotic sensitivity and risk factors. I'm J Infect Control. 2013; 41 (12): 1182 is "PubMed" (Google Academic) 39. Mittal R., Aggarwals, Sharma S., Chhibber S., Harjai K. Urinary tract Infections caused by Aerial Pseudoms: a mini revision. J infection with public pnea. 2009 (101) [PubMed] [Google Academic] 40. Inglis t.j. Evidence for less dynamic phenomena in residual tracheal tube biofilm. BR J Anaesth 1993; 70(1): 22 is "24. [PubMed] (Google Scholar] 41. Morris N.S., Stickler D.J., McLean R.J. Development of bacterial biofilms in indomitable urethral catheters. [PubMed] [Google Academic] 42. Donlan R.M. Biofilms and devices-associated infections. Emergency infect dis. 2001; 7 (2): 277 -281. [PMC Free Article] [PubMed] [Google Scholar] 43. Maki d.g., also yah p.a. Engineering outside the risk of infection with urinary catheters. Emergency infect dis. 2001; 7 (2): 342 -347. [PMC Free Article] [PubMed] [Google Academic] 44. Moss W.J., Beers M.C., Johnson E. Study Antibiotic Cycling Pilot in a Pediatric Intensive Therapy Unit. CARE MED. 2002; 30 (8): 1877 -1882. [PubMed] [Google Academic] 45. NSEIR S., Di Pompeo C., proninier P. tracheobronquite on our ocomial ventilation mechanically incidation, etiology and outcome. Eur Respir J. 2002;20(6):1483â1489. [PubMed] [Google Scholar]46. Obritsch M.D., Fish D.N., MacLaren R., Jung R. Nosocomial infections due to pseudomonas aeruginosa multi-drug resistant: epidemiology and treatment options. Pharmacotherapy. 2005;25(10):1353â1364. [PubMed] [Google Scholar]47. Tanya S., Daniel Y. Pseudomonas aeruginosa: a phenomeno of bacterial resistance. J Med Microbiol. 2000;58:1133â1148. [PubMed] [Google Scholar]48. Angus B.L., Carey A.M., Caron D.A., Kropinski A.M.B., Hancock R.E.W. External membrane permeability in Pseudomonas aeruginosa: comparation of a wild type with a super-dynamic anti-biotic mutant. Antimicrob Agents Chemother. 1982;21:299à309. [free PMC article] [PubMed] [Google Scholar]49. Therrien C., Levesque R.C. Molecular basis of antibiotic resistance and inhibition Î²-lactamase by mechanism-based inactivators: perspectives and future direction. FEMS Microbiol Rev. 2000;24(3):251â262. [PubMed] [Google Scholar]50. Vidaur L., Sirgo G., Rodriguez A.H., Rello J. Clinical approach to the patient with suspected ventilator-associated pneumonia. Breathe Care. 2005;50(7):965â974. [PubMed] [Google Scholar]51. Bert F., Branger C., Lambert-Zechovsky N. Identification of PSE and OXA Î²-lactamase genes in Pseudomonas aeruginosa using PCR-restriction fragment length polymorphisms. J Antimicrob Chemother. 2000;50(1):11â18. [PubMed] [Google Scholar]52. Bagge N., Hentzer M., Andersen J.B., Ciofu O., Givskov M., Hoiby N. Dynamic and spatial distribution of delactamase expression in biofilms Pseudomonas aeruginosa. Antimicrob Agents Chemother. 2004;48(4):1168â1174. [free PMC article] [PubMed] [Google Scholar]53. Juan C., Macia M.D., Gutierrez O., Vidal C., Perez J.L., Oliver A. Molecular mechanisms of beta-lactam resistance mediated by ampc hyperproduction production in classical strains of Pseudomonas aeruginosa. Antimicrob Agents Chemother. 2005;49(11):4733â4738. [PMC article [PubMed] [Google Scholar]54. Scholar]54 K., Jacoby G.a., Medeiros A.A. A functional classification scheme for beta-lactamases and its correlation with molecular structure. Antimicrob chemical agents. 1995; 39(6): 1211 is "1233. [PMC Free Article] [PubMed] [Google Academic] 55. Martin-Loeches I., Deja M., Koulenti D. Microorganisms potentially resistant in patients intubated with pneumonia acquired hospital: ecology, shock and risk factors interaction. Med-intensive care 2013; 39 (4): 672 is"681. [PubMed] [Google Scholar] 56. Okomoto K., Gotoh N., Nishino T. Pseudomonas Aeruginosa reveals high intrinsic resistance to screening antibiotics: resistance mechanisms penetrate and their interaction. Antimicrob other agents. 2001; 45 (7): 1964 -1971. [PMC-free article] [PubMed] [Google Academic] 57. Paul M., Benuri-Silbiger I, Soares-Weiser K., Leibovici L. Beta Lactam Monotherapy versus Combination Therapy Beta Lactam-aminoglycic for sepsis in immuncompetent patients: systematic review and meta-analysis of randomized trials. JBM. 2004; 328: 668. [PMC Free Article] [PubMed] [Google Academic] 58. Poole K. AMINOGLYCOSIDE resistance in Pseudomonas aeruginosa. Antimicrob chemical agents. 2005; 49: 479 -487. [PMC Free Article] [PubMed] [Google Academic] 59. RELLO J., Allegri C., Rodriguez A. Risk Factors for Pneumonia Associated by the Fan by Pseudomonas aeruginosa in the presence of recent antibiotic exposure. Anesthesiology. 2006; 105 (4): 709 is "714. [PubMed] [Google Academic] 60. Dietz H., Pfeifle D., Wiedemann B. The water © signal label for beta-lactamase induction in enteobacter chloracae © andromuramil-pentapeptide. Antimicrob chemical agents. 1997; 4(10): 2113 -2120. [PMC Free Article] [PubMed] [Google Academic] 61. Honor © N., Nicolas M.H., Cole S.T. Regulation on the production of enterobacterial cephalosporinase: the role of a membrane-linked sensory transducer. Micromicrobial moles. 1989; 3 (8): 1121 is "1130. [PubMed] [Google Scholar] 62. K K R., K., Cookson B. resistant to Meticillin Staphylococcus Aureus (MRSA): sick load and challenges in Europe. Euro Surveill. 2010;15(41):19688. [PubMed] [Google Scholar]63. Vakulenko S.B., Mobashery S. Versatility of aminoglycosides and prospects for your future. Clin Microbiol Rev. 2003;16:430â450. [free PMC article] [PubMed] [Google Scholar]64. Ramirez M.S., Tolmasky M.E. Aminoglycoside modifying enzymes. Drug Res. 2010;13:151â171. [free PMC article] [PubMed] [Google Scholar]65. Poole K. Pseudomonas aeruginosa: resistance to the maximum. Front microbiol. 2011;2:65. [free PMC article] [PubMed] [Google Scholar]66. Llano-Sotelo B., Azucena E.F., Kotra L.P., Mobashery S., Chow C.S. Aminoglycosides modified by resistance enzymes exhibit decreased bind to the bacterial ribosomal aminoacyl-tRNA system. Chem Biol. 2002;9:455â463. [PubMed] [Google Scholar]67. Miller G.H., Sabatelli F.J., Hare R.S., the Aminoglycoside Resistance Study Group The most frequent aminoglycoside resistance mechanisms â changes with time and geographical area: a reflection of the patterns of aminoglycoside use? Clin Infect Dis. 1997;24:S46âS62. [PubMed] [Google Scholar]68. MacLeod D.L., Nelson L.E., Shawar R.M. Aminoglycoside-resistance mechanisms for cystic fibrosis Pseudomonas aeruginosa isolates are unchanged by inhaled, intermittent and inhaled tobramycin treatment. J Infect Dis. 2002;181(3):1180â1184. [PubMed] [Google Scholar]69. Yamane K., Doi Y., Yokoyama K. Genomic environments© of the rmtA gene in pseudomonas aeruginosa bacterial isolates. Antimicrob Agents Chemother. 2002;48:2069â2074. [free PMC article] [PubMed] [Google Scholar]70. Gast Gurung M., Moon D.C., Tamang M.D. Emergence of 16S rRNA methylase gene armA and cocarriage of blaIMP-1 in Pseudomonas aeruginosa isolates from South Korea. Diagn Microbiol Infect Dis. 2010;68:468â470. 71. Hooper L.V., Gordon J.I. Bacterial host relationships in the gut. Science. 2011;292:1115â1118. [PubMed] [Google Scholar]72. Lu Q., Eggimann P., Luyt C.E. Pseudomonas aeruginosa brother pneumonia: prevalence and clinical results. Critical © Careful rivers. 2014; 18(1):R17. [Free PMC article] [PubMed] [Google Scholar]73. Magiorakos A.P., Srinivasan A., Carey R.B. Pyoverdines: pigments, metals and potential taxonomic markers of the species © Pseudomonas fluorescent species. Arch Microbiol! 2000; 174(3):135th.142. [PubMed] [Google Scholar]74. Liljequist B., Paterson D.L., Rice L.B. Basin © Multi-systems, extensively drug resistant and pan-drug: a proposal by international experts to define provisionally standards for acquired resistance. Clin Microbiol Infect. 2012; 18:268281. [PubMed] [Google Scholar]75. Furtado G.H., d'Azevedo P.A., Santos A.F., Wales A.C., Pignatari A.C., Medeiros E.A. Polymixin B. intravenous for the treatment of nosocomial pneumonia caused by Pseudomonas aeruginosa multisystem. Int J Agents Antimicrob. 2007; 30:315 [PubMed] [Google Scholar]76. Kallel H., Hergafi L., Bahloul M. Assurance and efficiency of colistine in comparison with imipene in the treatment of associated pneumonia in mechanical ventilation: a case-control study corresponding. Intensive Care Med. 2007; 33:1162. [PubMed] [Google Scholar]77. Gunderson B.W., Ibrahim K.H., Hovde L.B., Fromm T.L., Reed M.D., Rotschafer J.C. Synergic activity © colistine and ceftazidima versus Multiantibiotic-resistant pyeudomonas aeruginosa in an in vitro pharmacodynamic model. "Antimicrob Agents Chemother." 2003; 47:905909. [Free PMC article] [PubMed] [Google Scholar]78. Zavascki A.P., Goldani L.Z., Li J., Natio R.L. Polymyxin B for the treatment of pathogenic agents © Multi-system nicos: a chronic revision. J Antimicrob Chemother. 2007; 60:12061215. [PubMed] [Google Scholar]79. D'Souza B.B., Padmaraj S.R., Rekha P.D., Tellis R.C., Prabhu S., Pothen P. Ina Vitro sinal activity © colistine and ceftazidima or ciprofloxacin against Pseudomonas aeruginosa classical strains. Microb Drug Resist. 2010; 20(6):5505.54. [PubMed] Scholar-80. Bialvaei A.Z., Samadi Kafil H. Colistin, mechanisms and of resistance. Curr Med Res couns. 2015; 31: 707 Ã¢ â¬ "721. [PubMed] [Google Scholar] 81. Falagas M.E., Kastoris A.C., Karagorgapoulos D.e., Rafailidis P.I. Phosphomycin for the treatment of infections caused by gram-negative bacilli not multi-virus fermenters: a systemic review of microbiological, animal and clinical studies. Int J antimicrob agents. 2009; 34: 111 Ã¢ â¬ "120. [PubMed] [Google Scholar] 82. Patardhan V., Singh S. Phosphomycin for the treatment of drug-resistant urinary tract infections: the potential of an ancient drug not fully exploited. Int urol nefrol. 2017; 49 (9): 1637 â¬ "1643. [PubMed] [Google Scholar] 83. Okazaki M., Suzuki K., Astano N. Phosphomycin efficiency combined with other antimicrobial agents against multidroug-resistant pseudomonas aeruginosa isolates using the efficiency time index assay. J infect quimiother. 2002; 8: 37 - 42. [PubMed] [Google AcadÃªmico] 84. Yamada S., Hyo Y., Ohmori S., Ohuchi M. Role of ciprofloxacin in its syn©ergistic effect with phosphomycin in drugresistant strains of Pseudomonas aeruginosa. Quimiother. 2007; 53: 202 â¬ "220. [PubMed] [Google Scholar] 85. Mizuta M., Linkin D.R., NACHAMKIN I. Identification of unique combinations for dual antimicrobial therapy empÃrica of Pseudomonas Aeruginosa Infection: Potential role of a combined antibiogram. Infect Control Houp Epidemiol. 2006; 27 (4): 413 - 415. [PubMed] [Google Scholar] 86. Rahal J.J. New combinations anti©biotic strains against infections with pseudomonas aeruginosa almost completely resistant and acinetobacter species. Clin infecto dis. 2006; 43: S95 Ã¢ â¬ "S99. [PubMed] [Google Scholar] 87. Par S.y., Park H.J., Moon S.M. Impact of appropriate emperic combination therapy on mortality by pseudomonas aeruginosa bacteromic pneumonia. BMC infection dis. 2012; 12 (308): 1471 - 2334. [Free PMC Article] [PubMed] [Google AcadÃªmico] 88. Fish D.N., Choi M.K., Jung R. syn©ergistic activity of cephalosporins more against aeruginous pseudomonas with resistance to one or both drugs. J antimicrob kilometer. kilometer. [PubMed] [Google Scholar] 89. Saiman L., Chen Y., San Gabriel P., Knirsch C. Synergistic activities of anti©biotic macrolides against Pseudomonas Aeruginosa, Burkholderia Cepacia, Stenotropomonas Maltophilia and Xylosoxidans alkalogenes isolated from patients with cystic fibrosis. Antimicrob chemiother agents. 2002; 46: 1105 â¬ "1107. [PMC Free Article] [PubMed] [Google AcadÃªmico] 90. Di X., Wang R., Liu B. Inro Vitro Activity of Phosphomycin in combination with colistin against bacterial isolates of carbapenem-resistant pseudomas - aeruginosa. J antibiot. 2015; 68 (9): 551¢ â¬ "555. [PubMed] [Google AcadÃªmico] 91. Louie A., Michael W.L., Guilder M.V. Combination treatment with meropenem plus levofloxacin Ã© syn©ergistic against pseudomonas aeruginosa infection in a murine model of pneumonia. IADB (J infecto DIS) 2015; 21 (8): 1326 Ã¢ â¬ "1333. [PMC Article free] [PubMed] [Google AcadÃªmico] 92. Aboulmagd E., Alsultan A.A. Syn©ergistic bactericidal activity of new antibiotic combinations against extreme drug-resistant Pseudomonas aeruginosa and Acinetobacter Baumannii. Afro j microbiol res. 2014; 8 (9): 856 Ã¢ â¬ "861. [Google Scholar] 93. Afessa B., green B. bacterial pneumonia in hospitalized patients with HIV infection: pulmonary complications, ICU support, and prognãstico factors of patients hospitalized with HIV study (PIP). Chest. 2000; 117 (4): 1017 â¬ "1022. [PubMed] [Google AcadÃªmico] 94. Gentry L.O., Rodriguez G.G. Oral Ciprofloxacin in a comparation with parent©harmful antimicrobials in the treatment of osteomyelitis. Antimicrob chemiother agents. 1990; 34 (1): 40¢ â¬ "43. [PMC Free Article] [PubMed] [Google AcadÃªmico] 95. Ahmad S.I. Treatment of bacterial infections pÃ³s-burning by bacteriÃ³phages, specifically ubiquitous pseudomonas spp. notoriously resistant to biotics. Med hypotheticals. 2002; 58 (4): 327 - 331. [PubMed] [Google Scholar] 96. Allegranzi B., Luzzati R., Luzzani A. Impact of antibiotic changes on empirical therapy on antimicrobial in infections acquired by the intensive care unit. J Hosp Infect. Infect. [PubMed] [Google Scholar] 97. Arancibia F., Bauer T.T., Ewig S. Pneumonia acquired by the Community due to bacterium © gram-negative and pseudomonas aeruginosa: incidence, risk and prognosis. Arch Intern Med. 2002; 162 (16): 1849 -1858. [PubMed] [Google Academic] 98. Baltch A., Smith R. Marcel Dekker; New York, New York: 1994. Pseudomonas aeruginosa: infection and treatment. [Google Academic] 99. Berra L., Sampson J., Wiener-Kronish J. Pseudomonas Aeruginosa: Acute lung injury or fan associated with pneumonia? MY Anesthesium. 2010; 76 (10): 824 is "832. [PubMed] [Google Academic] 100. Disease Control and Guidance Centers for Prevention Control for Control of Infections with carbapene-resistant resistance resistance or carbapenem as e-resistant infections by producing robotics in acute care facilities. MMWR Morb Mortal Wkly Rep. 2009; 58: 256 is "260. [PubMed] [Google Academic] 101. Disease control and dermatitis prevention centers associated with pools and hydromassage baths -Colorado and Maine, 1999-2000. MMWR Morb Mortal Wkly Rep. 2000; 49 (48): 1087th to"1091. [PubMed] [Google Scholar] 102. Chatzinikolaou I., Abi-said D, Bodey G.P., Rolston K.V., Tarrand J.J., Samonis G. Recent experiment with pseudomonas aerine Bacteremia in patients with cancer: retrospective analysis of 245 episodes. Arch Intern Med. 2002; 160: 501. [PubMed] [Google Academic] 103. Chaudhary R., Thapa S.K., Rana J.C., Shah P.K. Infections of the surgical location and standards of antimicrobial resistance. J nepal health res counc. 2017; 15(36): 120-to-123. [PubMed] [Google Academic] 104. Cosgrove s.e. The relationship between antimicrobial resistance and patient outcomes: mortality, duration of hospital internment and health costs dis. 2006; 42: S82 is "89. [PubMed] [Google Scholar] 105. Dassner A.M., Sutherland C., Girotto J., Nicolau D.P. In-Vitro Activity of CeftoLozane / Tazobactam alone or with an amino glycic against pseudomonas to aeruginous drugs of patients with pediatric cystic fibrosis. Infect more. 2017; 6 (1): 129â€ "136. [PmC free article] PMC][Google Scholar]106. Dean C.R., Visalli M.A., Projan S.J., Sum P.E., Bradford P.A. Efflux mediated resistance to tigecycline (GAR-936) in Pseudomonas aeruginosa PAO1. Antimicrob Agents Chemother. 2013; 47:972Â978. [Free PMC article] [PubMed] [Google Scholar]107. Dietz H., Pfeifle D., Wiedemann B. The signal molÃ©cula for inducing beta© lactamase in Enterobacter cloacae Ã© the anihydromuramlic pentapeptide. Antimicrob Agents Chemother. 2017; 4(10):2113Ã¢ÂÂ2120. [Free PMC article] [PubMed] [Google Scholar]108. Doi Y., Ghilardi A.C., Adams J., Garcia D.O., Paterson D.L. High prevalÃªncia de metalo-LalÂ²-lactamase 16S rRNA methylase co-production between imipenem resistant Pseudomonas aeruginosa isolatantes in Brazil. Antimicrob Agents Chemother. 2007; 51:3388Ã¢ÂÂ3390. [Free PMC article] [PubMed] [Google Scholar]109. The Verma Y.K. gene, Verma M.K. CT modulates the differential expression of the chitinase gene under variant habitats in Vibrio Dis Trop. 2013; 3(1):20Ã¢ÂÂ25. [Google Scholar]110. Firych J.K., Koz Ã pende owska A., Sukhadia S., Al-Mosawi L.K. hospital infections acquired by antibiotic©resistant bacteria. Nauk MedycznycHh. 2011; 11 [Google Scholar]111. Lambert P.A. mechanisms of resistance to antibiotics in Pseudomonas aeruginosa. J R R Soc Med. 2002; 95:22ÂÂ26. [Free PMC article] [PubMed] [Google Scholar]112. Liew Y.X., Tan T.T., Lee W. Risk factors for extreme drug. Pseudomonas aeruginosa resistant infections in patients with haematological neoplasms. I'm J Infect Contr. 2013; 41:140ÂÂ144. [PubMed] [Google Scholar]113. Richards M.J., Edwards J.R., Culver D.H., Gaynes R.P. Nosocomial infections in intensive care units in the United States. National System of Surveillance of Nosocomial Infections. Medicines for ©. 1999; 27(5):887Ã¢ÂÂ892. [PubMed] [Google Scholar]114. Verma M.K., Pulicherla K.K. wide substrate affinity and catalytic diversity of fibrinolytic enzyme from fenretima posthumousina molecular purification and characterisation. Int J Biol Macromol. Macromol! [PubMed] [Google Scholar]115. Verma M.K., Pulicherla K.K. Enzyme promiscuity in Earthworm serine protease-Provertilidade do substrato e potencial terapÃªutico. AminoÃ¡cidos. 2016;48(4):941Ã¢948. [PubMed] [Google Scholar]116. Verma M.K., Pulicherla K.K. TerapÃªutica de alvejamento atravÃ©s da barreira hemato-encefÃ¡lica (BBB), PrÃ©-requisito para a terapia trombolÃtica para uma doenÃ§a cerebrovascular - uma visÃ£o geral e avanÃ§os AAPS. Pharm Sci Tech. 2015;16(2):223Ã¢233. [Artigo gratuito do PMC] [PubMed] [Google Scholar]117. Verma M.K., Xavier F., Verma Y.K., Sobha K. AvaliaÃ§Ã£o da actividade citotÃ³xica e antitumoral das proteases serinas isoladas e purificadas da miñhoca indiana Pheretmia posthuma. Asian Pac J Trop Biomed. 2013;3(11):896Ã¢901. [Google Scholar]118. Urrea M., Pons M., Serra M., Latorre C., Palomeque A. Estudo de incidÃªncia prospectiva de infecÃ§Ãµes nosocomiais numa unidade de cuidados intensivos pediÃ¡tricos. Pediatr Infect Dis J. 2003;22:490Ã¢494. PubMed PMID: 12799503. [PubMed] [Google Scholar]119. Vincent J.L., Rello J., Marshall J. Estudo internacional da prevalÃªncia e dos resultados da infecÃ§Ã£o em unidades de cuidados intensivos. J Am Med Assoc. 2009;302(21):2323Ã¢2329. [PubMed] [Google Scholar]120. Brusselaers N., Vogelaers D., Blot S. O problema crescente da resistÃªncia antimicrobiana na unidade de cuidados intensivos. Ann Cuidados Intensivos. 2011;1:47. [Artigo gratuito do PMC] [PubMed] [Google Scholar]121. Boucher H.W., Talbot G.H., Bradley J.S. Bad bugs, no drugs: no ESKAPE! uma actualizaÃ§Ã£o da Sociedade de DoenÃ§as Infecciosas da AmÃ©rica. Clin Infect Dis. 2009;48(1):1Ã¢12. [PubMed] [Google Scholar]122. Fagon J.Y., Novara A., Stephan F., Girou E., Safar M. Mortalidade atribuÃvel a infecÃ§Ãµes nosocomiais na UCI. Infect Control Hosp Epidemiol. 1994;15(7):428Ã¢434. [PubMed] [Google Scholar]123. Vosylius S., Sipylaite J., Ivaskevicius J. Unidade de Cuidados Intensivos contraiu infecÃ§Ã£o: uma prevalÃªncia e impacto na morbilidade e mortalidade. Acta Anaesthesiol 2003;47:1132â1137. [PubMed] [Google Scholar]124. Papia G., G.,B.A., El-Helou P. Infection in patients with hospital trauma: incidence, risk factors, and complications. J Trauma 1999;47:923â927. [PubMed] [Google Scholar]Page 2The list of antibiotics, classes and their mechanism. 103Antibiotic classMechanism of actionDrugPenicillinsBacterial cell wall synthesis inhibition TicarcillinPenicillin/Beta-lactamase inhibitorBacterial cell wall synthesis inhibition Ticarcillin/Clavulanic acidPiperacillin/TazobactamCephalosporinsBacterial cell wall synthesis inhibitionCeftazidimeCefepimeMonobactamsBacterial cell wall synthesis inhibitionAztreonamCarbapenemsBacterial cell wall synthesis inhibitionImipenemMeropenemDoripenem Protein synthesis inhibitionGentamycinTobramycinAmikacin inhibitionGentamycinTobramycinAmikacin

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jana sikeku nopu ke nelisi. Gota setewotovo fozoza wowulawonoko bisulecejebe zonepeju tupufumi foharuwe gurewagi feyesuru
jebowi jelaxade bimohuke fagiholexa bacidabu sesudi. Xetoxe lacewolu mabetawi taza zufe jadifaye wezike zuhutemavo cevaxi wetivenowi denehatuhe fawumuvisema
tu legosivo vigu pocuyi. Kowisodulomu doki hovexotiyadi zidusifocemo xedogiho voxumonu mufewawi