patients. This study challenges the pharmacokinetic rationale for a loading dose similar to a study by Gregoire N, et al (2014).

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The sensitivity to antibiotics of nosocomial strains of acinetobacter baumanii isolated in the tertiary hospitals in the Central Kazakhstan

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Background: Acinetobacter baumanii are one of main bacterial pathogen caused nosocomial infection according International Guidelines of Infection Control (2015). Last 4 years the part of nosocomial infection caused by Acinetobacter baumanii are dramatically grows.

Methods & Materials: In the multicenter study 200 strains of Acinetobacter baumanii were collected in period 2012-2015yy. Strains were collected in 3 tertiary hospitals in the Central Kazakhstan. All strains were identified by MALDI-TOF mass-spectrometry and typed by PCR detection of OXA-51 carbapenemase as A.baumanii specific label. The sensitivity testing were by micro dilution methods with CLSI criteria using. The OXA-23 and OXA-40 carbapenemases genes detection made by PCR with commercial kits (Interlab Service, Russia). The statistical analysis (MIC90, average MIC, 95% Confidential Interval) was made by WhoNet 6.2 database.

Results: All isolated strains are resistance to main part of antimicrobial drug (pic. 1). During fourth years period the resistance to carbapenems were increased: to imipenem 64,5%; 95%CI 45,5-80,2 (2012 year) to 81,2; 95%CI 66,8-90,5 (2015 year). The resistance growth by logarithmic depence (y = 12,257ln(x) + 65,537; R² = 0,9612). The testing of general linear hypothesis in regression situation for logarithmic model can predict level of resistance in 2016 at over 85% (pic.2). The dynamic of increasing to meropenem was the same and changed from 61.3% (2012) to 84,5% (2015yy). In all cases of resistance to carbapenems the gene blaOXA-23 carbapenemase was detected. The quantitavive characteristics of sensitivity to antimicrobials are present in table 1. The high part of studied strains were sensetivity to aminoglycosides: netilmycin (97,9%), sisomycin (91,3%), tobramycin (100%) and colistine (89,6%) and tigecycline (100%). However all preparations mentioned above are not registered in Kazakhstan so can’t using for treatment infections caused A.baumanii.

Conclusion: The resistance to carbapenems in the fourth tertiary hospitals in the Central Kazakhstan are increased during 2012-2015yy. The major cases of resistance to beta-lactams were linked with OXA-23 carbapenemase production. Some part of antibiotics (netilmycin, sisomycin, tobramycin, colistin and tigecycline) has high activity against studied nosocomial strain of A.baumanii but this drug not registered in Kazakhstan.

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Computer assisted rational design and synthesis of some novel 2,4-di-substitued thiazole derivatives and their metal complexes (copper, cobalt, and nickel) as inhibitor of bacterial metabolic enzymes

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Background: Recent clinical reports have highlighted the increasing occurrence of methicillin-resistant Staphylococcus aureus (MRSA), vancomycin-resistant enterococci (VRE) and other antibiotic-resistant human pathogenic microorganisms. Transition metal complexes of heterocyclic moieties or/with Schiff's base components have been reported to show promising nucleolytic activity. In an effort to develop newer generation low molecular
weight ligands, few thiazole coupled with Schiff's base and their metal complexes were synthesized and biologically evaluated.

Methods & Materials: A novel series of thiazole derivatives were rationally designed by Computer Assisted Drug Design (CADD) approach (VLife Science®). The optimized scaffold was synthesized in multiple steps from thiosemicarbazide and was suitably cyclized to get corresponding active 2,4-di-substituted thiazole derivatives. Metal complexes of thiazoles were further prepared using salts of d-block compounds (copper, nickel and cobalt) as per protocol designed in our laboratory. The modern analytical techniques (UV-Vis, IR, NMR, MS, XRD, AAS, MM, MC) revealed that the results were in full agreement with their assigned chemical structures. All the synthesized compounds were screened for their anti-microbial activity according to standard protocol against bacterial strains (E. coli, MTCC-1687; S. aureus, MTCC-2940; B. subtilis, MTCC-441; and K. pneumonia, MTCC-3040). The nucleolytic activity of compounds and metal complexes were evaluated using gel electrophoresis employing E. coli plasmid pBR322.

Results: Among them, para-substituted (halogenated) thiazoles exhibited excellent anti-bacterial activity against E. coli, S. aureus, and K. pneumonia. Nearly all compounds exhibited moderate to high nuclease activity. The copper complexes showed moderate nuclease activity while cobalt and nickel complexes displayed excellent nuclease activity. The in silico docking study performed revealed the binding orientations of these compounds at active site amino acid residues ASN 165 and GLU 40 (PDB ID: 1AHP), amino acid residues TYR 151 and GLY 18 (PDB ID: 2C44) and amino acid residues ARG 73 and ASP 76 (PDB ID: 1K6W) of crystal structure of E. coli metabolic enzymes.

Conclusion: From this study, it can be concluded that the novel molecules have tremendous anti-microbial and nuclease activity. This research helps in understanding mechanism of action of thiazole based anti-microbials and it may possibly be used as template for searching potent anti-microbial agents in future.

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Incidence of SHV and CTX-M Extended spectrum β-lactamases producing gram negative bacterial isolates from antenatal mother with asymptomatic bacteriuria

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Background: Asymptomatic bacteriuria (ABU) occurs in 2 to 10% of cases during pregnancy and the risk of onset of bacteriuria is maximum between 9th to 17th week of gestation. ABU will lead to adverse anomalies if left untreated such as acute pyelonephritis, low birth weight infants (LBW) and premature delivery. The incidence of Extended Spectrum Beta-Lactamases (ESBLs) such as TEM-1, SHV-1 and CTX-M type producing uropathogenic bacteria have been increasing over years. Thus this study was carried out to analyze the population of ESBL producing MDR Gram negative bacteria and to ascertain the most prevalent ESBL gene in our geographical region among antenatal women with asymptomatic bacteriuria.

Methods & Materials: A total of 637 asymptomatic antenatal mothers with asymptomatic bacteriuria, 54 urine samples were not included due to improper sample collection and 268 samples were found to be sterile. Remaining 315 samples showed significant growth of single pathogenic bacteria. Among these, 44 were Gram positive isolates and 271 were Gram negative pathogens. ESBL production was phenotypically observed among 35% (n=95) of these GNB. Out of these 95 ESBL isolates, 73% were MDR isolates, none of them carried blαTEM and the presence of blαCTX-M and blαSHV were observed in 69.4% and 20% of isolates respectively. All the blαCTX-M and blαSHV amplicons were confirmed through sequencing followed by BLAST analysis (http://blast.ncbi.nlm.nih.gov/Blast.cgi).

Conclusion: Presence of blαCTX-M and blαSHV genes reflects their prevalence among the community. Periodic and continuous antenatal follow-up only can reduce the complications of asymptomatic bacteriuria among antenatal mothers. This study urges the need for the regional antimicrobial practicing policy by the stakeholders to implement and to monitor.

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Molecular detection of azithromycin resistance mechanisms in typhoidal salmonellae

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Background: Antibiotic resistance in enteric fever continues to pose major therapeutic challenge with increase in ciprofloxacin resistance. Azithromycin has been used to treat enteric fever as an alternate treatment option without any guidelines for laboratory interpretation. In 2015 issue CLSI has added breakpoints for testing azithromycin susceptibility in typhoidal Salmonellae. We aimed to assess the prevalence of resistance to azithromycin in S. Typhi and S. Paratyphi A in a collection of strains to characterize the mechanisms underlying resistance.

Methods & Materials: A total number of 224 S. Typhi and S. Paratyphi A isolates were available in the cryopreserved stock