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KNOWLEDGE ABOUT ANTIMICROBIAL RESISTANCE AND PARTICULARITIES OF ANTIMICROBIALS USE AMONG MEDICAL STUDENTS

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CUNOȘTINȚELE DESPRE REZISTENȚA LA ANTIMICROBIENE ȘI PARTICULARITĂȚILE CONSUMULUI DE ANTIMICROBIENE ÎN RÎNDUL STUDENȚILOR MEDICINIȘTI

Rezistența la antimicrobiene este astăzi una dintre problemele acute de sănătate publică. Microorganismele rezistente sunt responsabile de infecții grave, care cresc cheltuielile de sănătate și pot duce la deces. Peste 380000 de persoane din Uniunea Europeană contractă anual infecții cu microorganisme rezistente la antimicrobiene. În prezent, ca urmare a infecțiilor cauzate de microorganisme rezistente la antimicrobiene, 33000 de oameni mor anual în Europa și 700000 de oameni mor anual la nivel mondial din cauza epuizării resurselor terapeutice. Utilizarea necorespunzătoare a antibioticelor este una dintre principalele cauze ale dezvoltării

tării rezistenței antimicrobiene. Reieșind din actualitatea temei și impactul semnificativ al rezistenței la antimicrobiene asupra sănătății publice la nivel național, regional și global, este necesar să se efectueze studii privind particularitățile medico-sociale ale rezistenței antimicrobiene.

Introduction. Antimicrobial resistance is the ability of a microorganism to withstand the action of an antimicrobial agent. Antimicrobial resistance is one of Public Health issues today. Resistant microorganisms are responsible for serious infections, which increase health expenditure and can lead to death [1]. European Centre for Disease Prevention and Control (ECDC) estimated that infections caused by resistant microorganisms in European Union (EU) increase health expenditure by 1.5 billion euros per year [2]. Over 380000 people in European Union contract infections with antimicrobial resistant microorganisms annually. Currently, as a result of infections caused by antimicrobial resistant microorganisms 33000 people die in Europe every year and 700000 people die annually worldwide due to exhaustion of therapeutic resources [2, 3, 4]. Antimicrobial resistance problem is listed in Annex 1 to 2000/96/EC: Commission Decision of 22 December 1999 on the communicable diseases, this was already an important issue in the early 2000s. Inappropriate use of antibiotics is one of the main causes of antimicrobial resistance development [5, 6]. Based on the actuality and significant impact of antimicrobial resistance on public health at national, regional and global level, it is necessary to carry out studies on medico-social peculiarities of antimicrobial resistance.

Material and methods. A cross-sectional study was conducted. Epidemiological and statistical methods of study were used when conducting the study. A questionnaire on antimicrobial use was developed. The questionnaire consists of 3 parts: general data, data on recent antibiotic consumption and data on attitudes regarding antimicrobial use. To carry out the study, 164 national and international students from Nicolae Testemitanu State University of Medicine and Pharmacy were interviewed. Data were processed using Microsoft Excel and SPSS Statistics softwares.

Results. The medical students who participated in the study were from the Republic of Moldova – 90 (54,9%) and Israel – 74 (45,1%). The distribution by gender of interviewed students was the following: Female – 90 (54,9%) and Male – 74 (45,1%) with the age range between 19 and 23 years old. When asked if they ever used antibiotics, the students answered in the following way: yes – 138 (84,15%), no – 24 (14,63%), don't know – 2 (1,22%). 62 students (37,8%) from all participants have not used antibiotics during the last 12 months, 56 (34,15%) students have consumed antibiotics once, 42 (25,61%) students have consumed antibiotics 2-5 times

and 4 (2,44%) students are not sure about antibiotic consumption during last year. When asked if antibiotic use for animals can reduce the possibility of effective antibiotic treatment for humans, students answered as following: yes – 80 (48,78%), no – 40 (24,39%), don't know – 44 (26,83%). 70 (42,68%) students think that resistance can spread from animal to human, 40 (24,39%) students consider that resistance does not spread from animals to human and 54 (32,93%) students don't know. 50 (30,49%) students think that resistance can spread from human to human, 54 (32,93%) students consider that resistance does not spread from person to person and 60 (35,58%) students don't know. The answers to question „ It is good that one can buy antibiotics without a prescription in pharmacies within Republic of Moldova” were the following: Agree – 116 (70,73%), Partially agree 26 (15,85%), Don't agree – 10 (6,1%), Don't know – 12 (7,32%). The answers to question „ It is good that one can buy antibiotics without a prescription in pharmacies within certain countries” were the following: Agree – 24 (14,63%), Partially agree – 34 (20,73%), Don't agree – 88 (53,66%), Don't know – 18 (10,98%). The answers to question „Antibiotics make one recover faster when having a cold” were the following: Agree – 46 (28,05%), Partially agree – 46 (28,05%), Don't agree – 38 (23,17%), Don't know – 34 (20,73%). The answers to question „If one's feels better after only partially completing an antibiotic course, one can terminate the therapy immediately” were the following: Agree – 22 (13,41%), Partially agree – 28 (17,07%), Don't agree – 94 (57,32%), Don't know – 20 (12,2%). The answers to question „Bacteria can become resistant to antibiotics” were the following: Agree – 104 (63,41%), Partially agree – 26 (15,86%), Don't agree – 22 (13,41%), Don't know – 12 (7,32%). The answers to question „The more antibiotics we use in society, the higher is the risk that resistance develops and spreads” were the following: Agree – 100 (60,98%), Partially agree – 20 (12,19%), Don't agree – 16 (9,76%), Don't know – 28 (17,07%). The answers to question „ People can become resistant to antibiotics” were the following: Agree – 92 (56,1%), Partially agree – 20 (12,2%), Don't agree – 20 (12,2%), Don't know – 32 (19,5%). The answers to question „Nowadays, antibiotic resistance is a big problem in Moldova” were the following: Agree – 82 (50,0%), Partially agree – 30 (18,3%), Don't agree – 26 (15,85%), Don't know – 26 (15,85%). The answers to question „Nowadays, antibiotic resistance is a big problem in the world” were the following: Agree – 90 (54,88%), Partially agree – 20 (12,2%), Don't agree – 30 (18,29%), Don't know – 24 (14,63%). The last but not the least important question was „Hand hygiene reduces the risk of spreading common infections” and students' answers were the following: Agree – 86 (52,44%), Partially agree – 30 (18,29%), Don't agree – 28 (17,07%), Don't know – 20 (12,2%).

Conclusions:

1) Antimicrobial resistance is an important issue worldwide. Resistant microorganisms are often responsible for serious infections, as well as healthcare-associated infections, that can lead to severe disability or even death. Treating these infections often results in therapeutic failure and increasing the morbidity and lethality rate.

2) Maintaining the effectiveness of antibiotics is the responsibility of and each one of us. Rational use of antibiotics can prevent the development of resistant microorganisms and can preserve antibiotics' effectiveness for future.

3) It is important to know how to use antibiotics correctly and safely. This study has shown that medical students have certain knowledge and practice regarding antibiotic use, but also further information and awareness about the rational consumption of antibiotics is still needed.

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