

Assessment of the state of infection control in medical and preventive organizations in Osh region

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Abstract This article presents the results on the state of infection control in medical and preventive organizations in the Osh region. Report on the incidence of infections associated with medical care and infections in the field of surgical interventions of 2021 years. The research was conducted in 8 medical and preventive organizations in the districts of Osh region and in the city of Osh using the "Scorecard of infection control in healthcare organizations" including 64 criteria (sanitary and hygienic requirements, safety of medical procedures, compliance with disinfection, sterilization of surgical instruments and materials, administrative measures etc.), for the prevention of infections associated with the provision of medical care and infection in the field of surgical interventions. The assessment of the state of infection control was carried out by calculating the numerical expression of the percentage between the existing fulfillment of infection control requirements according to the data on the registration of the incidence. During the assessment, the main sanitary and hygienic directions for the prevention of diseases of infections associated with the provision of medical care and infections in the field of surgical interventions were identified.

Key words: infection control, healthcare-associated infections, infections in the field of surgical interventions, medical and preventive organization, prevention.

1. Relevance.

Currently, the problem of prevention and control of infections associated with the provision of medical care (HCAI) remains relevant, as it reflects the quality of medical care provided to the population and causes significant economic damage to the country's health care [1]

One of the main tasks of healthcare is to ensure the quality of medical care and create a safe environment for patients and staff in organizations engaged in medical activities.

Health care-associated infections are the most important component of this problem due to their wide distribution, negative consequences for the health of patients, and economic (direct medical and non-medical) costs. [2]

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The problem of combating HCAI, characterized by an increase in both the mortality rate, morbidity and cost of treatment, as well as the risk to the health of patients and medical personnel, is relevant in all countries of the world. [3]

At the same time, the rules of asepsis and antiseptics, which have long been generally accepted in medicine, were underestimated in healthcare organizations. [4]

A dual approach was used, in which everything related to surgical interventions was provided with available methods of asepsis and antiseptics using gloves, and in therapeutic reception, the attitude towards ensuring the safety of medical procedures was ensured mainly by cleanliness "like in the kitchen". [5]

But relatively recently, at the end of the 70s of the last century, Academician Valentin Ivanovich Pokrovsky had to convince epidemiologists and top-level healthcare organizers of the need to consider and study this problem. To assure that the colossal progress in the field of healthcare, the rapid development of medical technology, the widespread introduction of the latest diagnostic and treatment technologies will not only not solve, but will to some extent exacerbate the problem of nosocomial, hospital or, in the modern interpretation, infections associated with medical care (HCAI) [6].

The subsequent progressive development of medicine proved the complete correctness of the scientific postulates of V.I. Pokrovsky. The addition of HCAI negates the most complex operations on vital organs, negates the efforts spent on nursing newborns, and has an impact on child mortality. Mortality in various nosological forms of HCAI in the case of generalized infection ranges from 35 to 60%, reaching the same level as in the pre-antibiotic era. At the same time, in medical organizations, especially in multidisciplinary hospitals, conditions are created that are conducive to the emergence of HCAI: a huge concentration of people with reduced immunity in a limited area, the presence of a significant number of sources of infection (patients and carriers) among patients and medical personnel, a peculiar microbial landscape, changes in biocenosis mucous membranes and skin in patients and medical personnel under the influence of the widespread use of antibiotics and cytostatics. Under these conditions, the rate of evolution of microorganisms is significantly accelerated, and prerequisites are created for the formation of strains with new properties not only from among pathogenic and conditionally pathogenic microorganisms, but also from representatives of normal microflora. Multidrug resistant pathogens are emerging [7].

In the Russian Federation, according to official statistics, about 30,000 cases of HCAI are registered annually (approximately 0.8 per 1000 patients), but experts believe that their true number is at least 2-2.5 million. The incidence of HCAI varies depending on from the action of various factors. Some patient groups are particularly vulnerable: newborns; elderly people; patients with a severe course of the underlying pathology and multiple concomitant diseases; patients undergoing aggressive and invasive medical manipulations, organ transplants, etc. In these groups, the incidence of HCAI is significantly higher. Patients with HCAI stay in the hospital 2-3 times longer than similar patients without signs of infection. On average, their discharge is delayed by 10 days, the cost of treatment increases by 3-4 times, and the risk of death increases by 5-7 times [8].

The socio-economic damage caused by HCAI is also very significant. Thus, in Europe, about 5 million cases of HAIs are diagnosed annually, the damage from which is estimated at 13-24 billion euros [9]. In the Russian Federation, this figure, according to the most conservative estimates, can reach 300 billion rubles a year [10]. To date, the prevalence of HAIs has reached such proportions that some experts consider them "the largest epidemic of an infectious disease that has ever occurred on earth", with an estimated number of deaths of at least 250,000 cases per year in the United States and Europe alone. and economic damage of 30 billion euros per year [11].

All this was foreseen by V.I. Pokrovsky, when in the mid-1990s, together with professors Nina Alekseevna Semina and Elena Petrovna Kovaleva, he began work on the first edition of the Concept for the Prevention of Nosocomial Infections, approved in 1999.

Today, the epidemiological surveillance of HCAI is one of the most complex multicomponent sections of epidemiology, combining knowledge of the etiological foundations, clinical aspects of the manifestations of various nosological forms of HCAI, a complex system of their prevention,

summarizing the knowledge of various related applied medical disciplines and fundamental specialties (infectious diseases, hygiene, microbiology, disinfectology, statistics, physics, chemistry, instrumentation, etc.) [3].

2. Purpose of the research

- Evaluation of infection control infections associated with healthcare and infections in the field of surgical infections.
- Give recommendations to prevent the transmission route and ensure the safety of medical care, create a safe environment for both patients and medical staff.

3. Materials and methods of research

- The data for the incidence of HAIs and SSIs for the period of 2021 served as the material for the study. Osh GTsPZ and SSES Ministry of Health of the Kyrgyz Republic.
- Retrospective epidemiological analysis of morbidity.
- Statistical processing of the obtained results

4. Results and discussion of results.

The problem of infections associated with the provision of medical care is extremely relevant for all healthcare institutions of any profile. [12]

The study was conducted in 8 medical and preventive organizations in the districts of Osh region and in the city of Osh. In the course of the study, 15 nosological forms of morbidity for HCAI were identified, of which endometritis (after childbirth) 463 cases, of which in Osh-431, Alai-8, Kara-Suu-16, the denominator is 41586, which is 1.5%, purulent conjunctivitis of newborns - 25 of them in Osh-17, Kara-Suu-8, the denominator - 15811 (0.1%), omphalitis of newborns - 11 cases in Osh, neonatal pneumonia - 2, Osh-1, Nookat-1, denominator-103314, sepsis 13 cases in Osh, denominator-148119, post-injection abscess-10, of which 8 cases in Osh and Kara-Kulzha-2, denominator-157242, nosocomial acute respiratory diseases, nosocomial acute intestinal infections, nosocomial measles, nosocomial infections of medical personnel and doctors in HPE were not detected (Tab. 1).

Table 1. Information on the registration of HCAI in the Osh region for 2021

№	Nosological forms	Osh c.		Alai		Aravan		Kara-Suu		Kara-Kulzha		Nookat		Uzgen		Chon Alai		By region	
		HCAI	Denominator	HCAI	Denominator	HCAI	Denominator	HCAI	Denominator	HCAI	Denominator	HCAI	Denominator	HCAI	Denominator	HCAI	Denominator	HCAI	Denominator
1	Endometritis doctors	431	16696	8	816	-	4118	16	6523	8	1169	-	3035	-	8722	-	507	463	4186
2	Purulent conjunct-t of newborns	17	15811	-	602	-	4118	8	6524	-	1169	-	3035	-	5334	-	508	25	37101
3	Omphalitis of newborns	11	15811	-	602	-	4118	-	6524	-	1169	-	3035	-	5334	-	508	11	37101
4	Pneumonia of newborns	1	99075	-	602	-	527	-	112	-	1169	1	1119	-	207	-	503	2	103314
5	Sepsis	13	69563	-	3748	-	14915	-	29116	-	5470	-	10167	-	10216	-	4924	13	148119
6	Post-injection abscess	8	73240	-	3748	-	14915	-	29116	2	7535	-	13548	-	10216	-	4924	10	157242
7	Intrabolic acute respiratory infections	-	100165	-	5930	-	14915	-	29116	-	7535	-	10341	-	16969	-	4924	-	189895
8	Intrabolic acute intestinal infection	-	100165	-	5930	-	14915	-	29116	-	7535	-	10522	-	16969	-	4924	-	17142501
9	Int. inf. medical staff	-	2311	-	117	-	170	-	273	-	118	-	346	-	219	-	29	-	3583
10	Int. inf. medical staff, nurses	-	2336	-	671	-	420	-	714	-	403	-	336	-	905	-	165	-	5941

Infection of postoperative wounds is an acute problem, the development of which significantly aggravates the underlying disease, prolongs the patient's stay in the hospital, and increases the cost of treatment. For a long time, surgical infection has been the main cause of postoperative complications and deaths. According to the WHO, there are the following SSI prevalence rates: 13% after clean operations, 16% after conditionally clean, 29% after contaminated operations. [14]

According to the registration of SSI in the context of the districts of Osh region, the following results were revealed. Appendectomy-total-4002, of which SSI-101 in Osh-65, Alai-9, Aravan-6, Kara-Suu-3, Kara-Kulzha-6, Nookat-9, Chon-alai-3, cholecystectomy- 1914, of which SSI-14, hernia repair-2453, of which SSI-14, intestinal obstruction-223, of which SSI-18, Caesarean section-4078, of which SSI-156, adenomectomy-1018, of which SSI-9, osteosynthesis-2031, including SSI-2, other operations-17973, including SSI-50. (tab.2)

Table 2. Information on registration of SSI in Osh region for 2021.

№	Nosological forms	Osh c.		Alai		Aravan		Kara-Suu		Kara-Ku lzha		Nookat		Uzgen		Chon Alai		By region	
		Total operations	SSI																
1	Appendectomy	1560	65	110	9	433	6	924	3	92	6	423	9	394	-	66	3	4002	101
2	Cholecystectomy	896	12	34	1	19	-	657	1	110	-	84	-	110	-	4	-	1914	14
3	Hernia repair	907	12	9	-	170	-	907	1	73	-	219	-	147	-	21	1	2453	14
4	Bowel obstruction	170	18	2	-	4	-	24	-	4	-	10	-	8	-	1	-	223	18
5	Caesarean section	3161	155	12	-	133	-	213	1	9	-	329	-	202	-	19	-	4078	156
6	Adenomectomy	1005	9	0	-	-	-	3	-	-	-	-	-	10	-	-	-	1018	9
7	Osteosynthesis	1153	-	15	2	19	-	253	-	121	-	231	-	225	-	14	-	2031	2
8	Other operations	15037	50	68	-	299	-	2031	-	99	-	65	-	230	-	144	-	17973	50

4. Conclusion.

Infection control in medical and preventive organizations is an important component of maintaining the health of patients and medical staff. Employees of medical and preventive organizations should provide the necessary measures to prevent the route of transmission of infection and risk factors, protect patients and medical personnel for the prevention of HCAI and SSI. To ensure the quality of medical care and the creation of a safe environment for patients of staff in organizations engaged in medical activities.

The developed concept and system of IC formed the basis of the “Targeted program for the control of nosocomial infections and the management of medical waste” adopted in the republic. The implementation of the program is envisaged through the established infection control infrastructure in the healthcare system, and the main carriers of IC programs are infection control specialists and IC committees at the hospital level, at the republican level - the Republican Center for Infection Control and Department of Disease Prevention and State Sanitary Epidemiological Surveillance. [13]

According to the conducted studies, it can be seen that the SSI indicators are lower than the HCAI, which indicates the need for further work to improve anti-epidemic measures.

The leading nosological form of HCAI in surgical patients is SSI. In order to ensure a full record of SSI cases in operated patients, as well as to take into account the influence of risk factors of the diagnostic and treatment process on the incidence of these complications, it is necessary to introduce epidemiological monitoring of the outcomes of surgical interventions in the hospital. The success of epidemiological surveillance largely depends on the availability of active methods for the detection of SSI using standard case definitions to eliminate subjectivity and divergence of opinion between individual observers and ensure reproducibility of results when conducting epidemiological surveillance. [15]

Improve the activities of HCAI and SSI prevention programs (administrative measures, sanitary and hygienic requirements, safety of medical procedures, disinfection, sterilization of surgical instruments and materials) to provide patients with safe medical care and create safe working conditions for medical personnel. When improving the activities of prevention programs, the features

of the structure, recruitment and profile of departments, specific features of the contingent of patients and the treatment and diagnostic process, the level of healthcare development, the financial material resources of the region and medical facilities are taken into account.

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