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THE WORKING OF THE UROLOGY DEPARTMENT DURING THE COVID-19 EPIDEMIC

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Introduction. In March 2020, the World Health Organization declared the outbreak of the novel coronavirus infection (COVID-19) a pandemic. The pandemic also significantly affected all academic, scientific and educational activities.

Material and methods. We compared the work of the urological departments of the private (Medical Center "Avicenna", Novosibisk) and municipal (City Clinical Hospital No. 11, Barnaul) clinics, as well as the urogenital department of the Novosibirsk Research Institute of Tuberculosis of the Ministry of Healthcare of Russia for 6 months of "calm" 2019, and the first half of 2020, which coincided with the start of the COVID-19 coronavirus pandemic.

Results. In March 2020, the urogenital department of the Novosibirsk Research Institute of Tuberculosis of the Ministry of Healthcare of Russia was redesigned into an observational one. In the first half of 2020, patients with malignant neoplasms, varicocele, chronic pyelonephritis, hydronephrosis, dropsy of the testicular membranes and with phimosis/paraphimosis were admitted to the urology department of the City Hospital No. 11 in Barnaul in the first half of 2020. On the contrary, statistically significant in 2020 the number of patients admitted for kidney abscess and acute prostatitis prevailed. It can be assumed that, due to the tense epidemic situation, patients postponed seeking medical attention until their condition required emergency intervention. In the Medical Center "Avicenna" (Novosibirsk) in the first half of 2020 the number of visits to the pediatric urologist significantly decreased, the inpatient and average bed-day decreased. On the contrary the total duration of the patients' stay in the day hospital has significantly increased, which is logically explained by the epidemic situation; there was a statistically significant decrease in the number of most operations and outpatient procedures.

Conclusion. The new coronavirus infection has affected all spheres of human life, to a maximum extent – on medicine. In the first six months, no unified approaches to the management of urological patients in epidemic conditions were developed; clinics worked according to internal standards. Our analysis showed that strict adherence to sanitary and hygienic standards and the implementation of anti-epidemic measures allows us to provide urological care to patients in full-even in such unfavorable conditions.

Keywords: coronavirus infection; COVID-19; urological assistance.

РАБОТА УРОЛОГИЧЕСКОГО ОТДЕЛЕНИЯ ВО ВРЕМЯ ЭПИДЕМИИ COVID-19

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Введение. В марте 2020 г. Всемирная организация здравоохранения объявила вспышку новой коронавирусной инфекции (COVID-19) пандемией. Пандемия существенно повлияла и на всю академическую, научную и образовательную деятельность.

Материалы и методы. Мы сравнили работу урологических отделений частной (МЦ «Авиценна», Новосибирск) и муниципальной (КГБУЗ «Городская клиническая больница № 11», Барнаул) клиник, а также урогенитального отделения ФГБУ «Новосибирский НИИ туберкулеза» Минздрава России за 6 мес. «спокойного» 2019 г. и первое полугодие 2020 г., пришедшее на начало пандемии коронавирусной инфекции COVID-19.

Результаты. Урогенитальное отделение ФГБУ «Новосибирский НИИ туберкулеза» Минздрава России в марте 2020 г. было перепрофилировано в обсервационное. В урологическое отделение городской больницы № 11 (Барнаул) в первом полугодии 2020 г. достоверно реже поступали пациенты со злокачественными новообразованиями, варикоцеле, хроническим пиелонефритом, гидронефрозом, водянкой оболочек яичка и с фимозом/парафимозом. Напротив, статистически значимо в 2020 г. преобладало число пациентов, поступивших по поводу абсцесса почки и острого простатита. Можно предположить, что, ввиду напряженной эпидемической ситуации, пациенты откладывали обращение к врачу, пока их состояние не потребовало экстренного вмешательства. В МЦ «Авиценна» (Новосибирск) в первом полугодии 2020 г. статистически значимо уменьшилось число обращений к детскому урологу, уменьшился стационарный и средний койко-день. Напротив, суммарная продолжительность пребывания пациентов в дневном стационаре достоверно увеличилась, что логично объясняется эпидемической обстановкой; произошло статистически значимое снижение количества большинства операций и амбулаторных манипуляций.

Заключение. Новая коронавирусная инфекция повлияла на все сферы жизнедеятельности человека, в максимальной степени — на медицину. В первые полгода не было разработано унифицированных подходов к ведению урологических пациентов в условиях эпидемии, клиники работали по внутренним стандартам. Наш анализ показал, что четкое соблюдение санитарно-гигиенических норм и выполнение противоэпидемических мероприятий позволяет оказывать урологическую помощь пациентам в полном объеме — даже в таких неблагоприятных условиях.

Ключевые слова: коронавирусная инфекция; COVID-19; урологическая помощь

INTRODUCTION

At the end of December 2019, a new coronavirus disease (COVID-19) was first reported in Wuhan, China, and quickly spread worldwide. On March 11, 2020, the World Health Organization declared the outbreak a pandemic. Majority of the infected individuals had mild symptoms such as fever, headache, dry cough, and diarrhea; however, a few progressed to acute respiratory failure [1, 2].

Hospitals in most European countries lacked beds in intensive care units and personal protective equipment. Often, an algorithm for caring for COVID-19 patients was missing, and the healthcare system was unable to provide a standard level of treatment for patients with urological problems. Several urological departments were repurposed to treat patients with COVID-19; hence, planned surgical, including urological, procedures inevitably decreased. Moreover, the pandemic significantly affected all academic, scientific, and educational activities [3].

MATERIALS AND METHODS

We compared the work between urological departments of private (healthcare center Avicenna, Novosibirsk) and municipal (City Clinical Hospital No. 11, Barnaul) clinics and the urogenital department of the Novosibirsk Research Institute of Tuberculosis of the Ministry of Health of Russia for 6 months of "calm" 2019 and the first half of 2020, when the COVID-19 pandemic started. We considered the dynamics of the range of surgeries and manipulations and the structure of visits to the urologist. Data obtained during the study were statistically processed using the Microsoft Office 2007, Biostat 2009 software package, and differences between the groups were determined using the χ^2 test. The hypothesis of the absence of a statistically significant influence of the factor was rejected at $p > 0.05$.

RESULTS

In March 2020, the Urogenital Department of the Novosibirsk Research Institute of Tuberculosis of the Ministry of Health of Russia was repurposed into an observational unit. Patients who had negative COVID-19 results were admitted for planned treatment. At the department, they were subjected to a repeated nasopharyngeal swabbing, and for 14 days, they stayed in the observational department, after

which they were transferred to the therapeutic or surgical department. Urological patients were confined at the thoracic surgery department (through the observational unit) only in accordance with quotas for highly specialized medical care; patients were not admitted for diagnostics, chemotherapy, and follow-up examination.

The Urology Department of the City Clinical Hospital No. 11 has an 80-bed capacity; the main flow of patients arrives in an urgent order. Routine assistance was prohibited during the period analyzed in accordance with the order of the Ministry of Health of the Russian Federation. If COVID-19 was suspected, a nasopharyngeal swab was taken from the patient, and the patient was isolated in a separate ward until the result was obtained. The dynamics of the structure of nosology is presented in Fig. 1; the number of patients hospitalized with the same diagnosis in the first 6 months of 2019 was taken as 100%. Figure 1 show that in 2020, there were significantly less patients with malignant neoplasms, varicocele, chronic pyelonephritis, hydro nephrosis, hydrocele, and phimosis/paraphimosis. Conversely, in 2020, the number of patients admitted for kidney abscess and acute prostatitis was statistically significant. It can be assumed that, due to the strained epidemic situation, patients postponed visits to a doctor until their condition required emergency intervention. A potential decrease in the number of patients with acute and chronic cystitis in 2020 and, in contrast, an increase in the number of patients with benign prostatic hyperplasia was observed; however, these differences were not statistically significant. Among employees and patients, COVID-19 was diagnosed in individual cases; due to the observance of sanitary standards and the implementation of anti-epidemic measures, there has never been an outbreak of coronavirus infection "through contact" among patients and the department staff.

In the healthcare center Avicenna, in March 2020, a decision was made on the territorial division of inpatient and outpatient care. The mandatory use of face masks was introduced, and family visits to patients were prohibited. According to the center's standards, hospitalized patients stayed in single-occupancy rooms. Patients with ARVI symptoms and signs of infectious and inflammatory diseases were not sent for a consultation and were not hospitalized.

The introduction into practice of polymerase chain reaction testing for coronavirus enabled the urology department to resume its operation. The hospital was divided into a routine hospitalization department and an observational department, where emergency care was provided and testing of patients for coronavirus infection was performed and the department employees were regularly tested. In the hospital, there was a single morbidity of junior and medium-level medical personnel, as well as laboratory staff. There was a load on the call center, where more than half of the employees were on sick leave. None of the patients hospitalized became ill during their hospital stay. The change in the work of Avicenna is presented in Figs. 2–4; all indicators of the first half of 2019 were taken as 100%, and, accordingly, their dynamics in 2020 was reflected.

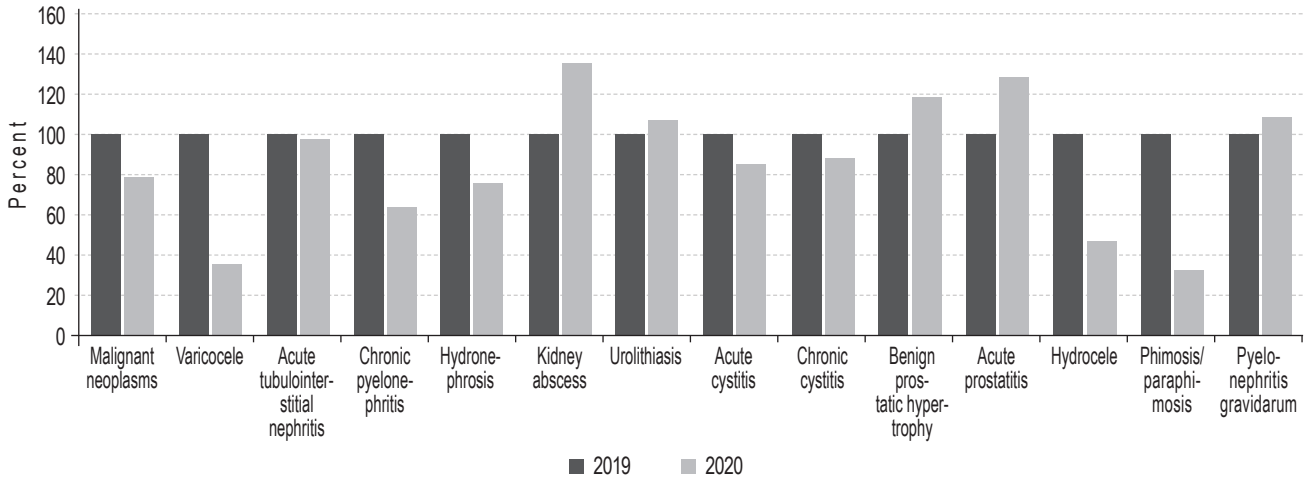

Fig. 1. Dynamics of the structure of nosologies of the urological department of the City Hospital No. 11 of Barnaul for the first half of 2019 and 2020

Рис. 1. Динамика структуры нозологий урологического отделения Городской больницы № 11 Барнаула за первое полугодие 2019 и 2020 г.

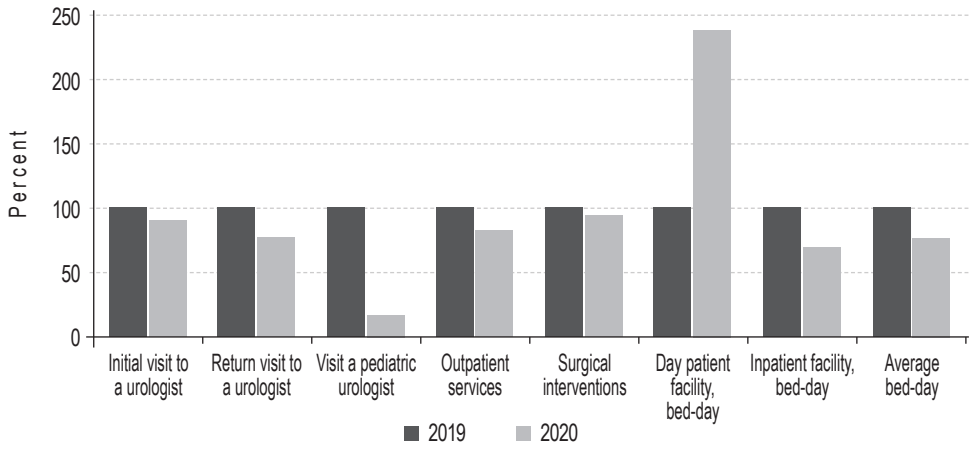

Fig. 2. Dynamics of urological reception at the Medical Center "Avicenna" (Novosibirsk)
Рис. 2. Динамика урологического приема МЦ «Авиценна» (Новосибирск)

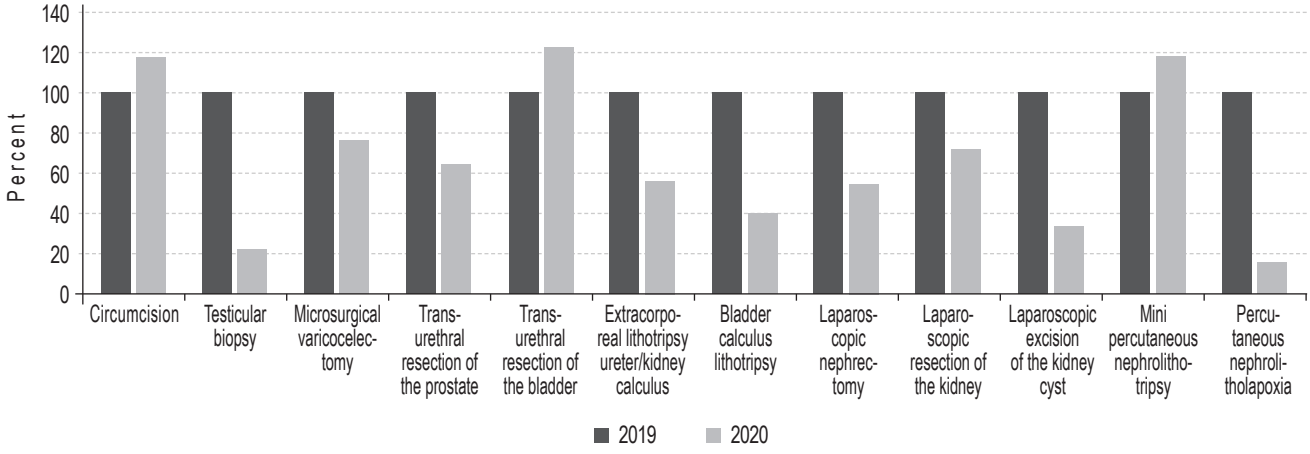

Fig. 3. Dynamics of the spectrum of surgical aids in the Medical Center "Avicenna" (Novosibirsk)
Рис. 3. Динамика спектра хирургических пособий в МЦ «Авиценна» (Новосибирск)

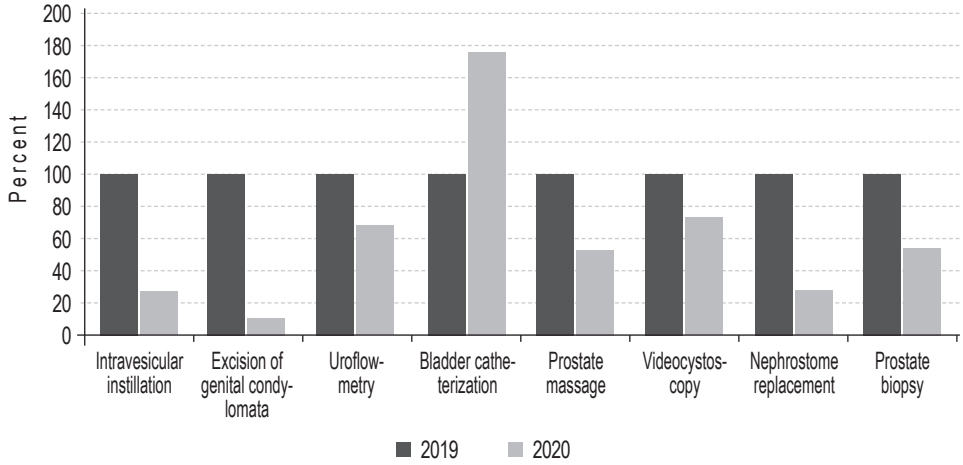

Fig. 4. Dynamics of performing outpatient procedures in the Medical Center "Avicenna" (Novosibirsk)
Рис. 4. Динамика выполнения амбулаторных процедур в МЦ «Авиценна» (Новосибирск)

Figure 1 reveals that in the first half of 2020, the number of visits to a pediatric urologist decreased statistically significantly, as well as the inpatient and average bed-days. However, the total duration of stay of patients in the day hospital has increased significantly, which is consistently explained by the epidemic situation.

Figure 3 clearly demonstrates a statistically significant decrease in the number of most surgeries;

only for some interventions, there was a minor increase compared to the first half of 2019.

A similar situation was noted for outpatient procedures, the number of which decreased as well during the COVID epidemic, with the exception of rescue bladder catheterization (Fig. 4).

DISCUSSION

A survey was conducted among representatives of the major urological centers in Europe, which involved 107 urologists from 22 countries, including 7 people from Russia. Most of the centers were university and public hospitals (63.55% and 25.23%, respectively), whereas private clinics accounted for 24.30% [4]. Due to the COVID-19 pandemic, clinical activities were terminated in 54.2% of respondent hospitals [5], and 85% of scheduled surgical procedures were canceled due to lack of resources and increased risk of COVID-19 infection. All institutions changed standards; thus, 80.2% followed internal rules, and 19.8% adhered to the international recommendations of urological societies.

Approximately 62.6% of the respondents explained the main reasons for the decrease in the workload of urological departments by the order of the hospital management. In 82.2% of facilities, the preoperative preparations for patients awaiting scheduled surgery has changed compared to the pre-pandemic period. A confirmation test for COVID-19 was performed in asymptomatic and suspected cases (contact, clinical symptoms of cough and fever) at 41.1 and 42.1% of centers, respectively. Approximately 11.2% of the centers performed routine chest computed tomography (CT) for all patients admitted for surgery, and 20.6% of them performed scanning in only suspected cases [4]. Chest CT has been shown to have a low COVID-19 misdiagnosis rate (4%) and may be useful as a standard method to identify quickly positive patients and optimize treatment. Furthermore, CT results enable the detection of infected patients before laboratory results are obtained in almost 70% of cases [6].

A shortage of medical personnel was reported by 52.3% of urologists, mainly due to sick leave (29%) and increased workload (25.2%). In 57.9% of centers, surgery was performed in patients with COVID-19 only in emergency cases, and only 8.4% of these centers performed surgery in scheduled cases. More than one-third of participants (33.6%) stated that surgical procedures were not performed on COVID-19 patients in their hospitals [4].

Up to 72.9% of participants said that the COVID-19 pandemic had a significant negative impact on scientific, academic, and educational activities. Additionally, 83.2% of respondents were forced to cancel their participation in the congresses; 70.1% of them stated that they had participated in some form of distance learning during the pandemic, although this practice was difficult in a number of regions [7]. Further, 92.5% of respondents believed that the pandemic moderately or severely impacts the healthcare system of their countries [4].

The European Association of Urology (EAU) recently published an updated version of the guidelines, including recommendations for patient selection and resource optimization [3, 8, 9]. However, hospital administrations were guided mainly by the recommendations of the ministries of health of their countries. Most of the institutions created independent protocols (80.2%), and 19.8% still followed the recommendations of the international guidelines. Several urology departments continued to perform laparoscopic and robotic surgeries. In this regard, the EAU Robotic Urology Section has released a version of the Emergency Care Guide with recommendations for robotic surgery [8].

Along with the protection of healthcare workers using personal protective equipment, the correct use of insufflation systems has been recommended to avoid the spread of the virus in aerosols [10].

Almost 70% of respondents said they operated on patients who tested positive for COVID-19; however, 57.9% of them conducted surgeries only in urgent cases and emergency conditions. Currently, all suspected COVID-19 patients who require surgery should be considered positive until proven otherwise to minimize the spread of infection [11].

Another survey included 1,004 participants, mostly from Asia, Europe, North America, and South America. Globally, 41% of respondents reported that their hospital staff had been diagnosed with COVID-19, 27% reported staff shortages, and 26% were referred to help patients with COVID-19 after short-term retraining, and only 33% of respondents believed that they have been provided with adequate personal protective equipment. The degree in reduction of urological services has increased with the increase in COVID-19 cases. On average, 30% of outpatient examinations and procedures and 31% of urological surgeries were delayed by more than 8 weeks [12].

In Germany, outpatient urologists felt significantly less prepared for the COVID-19 pandemic. They reported a shortage of protective medical equipment and described a tendency toward higher threat levels. In the outpatient sector, telemedicine was used more often than hospital consultations (25.5 versus 17.0%) [13].

A number of national and international urological associations and societies have recently released a series of guidelines to prioritize clinical and surgical interventions during the COVID-19 pandemic. In general, all guidelines are based on general principles such as the actual urgency of each diagnostic or therapeutic procedure and the trade-off between available resources and risks of postponing scheduled interventions [14].

Although the most significant evidence was considered, majority of the recommendations are ultimately based on either Level 3 evidence or expert opinion [14]. In the Russian Federation, guidelines have been issued for the provision of specialized medical care to the adult population in the urology profile under conditions of the new coronavirus infection COVID-19, on the specifics of the provision of emergency surgical care under conditions of COVID-19 [15–17].

CONCLUSION

The new coronavirus infection, which has rapidly spread globally, has undoubtedly affected all spheres of human life, including medicine to the maximum extent. In the first 6 months, several people did not understand what was happening, there were no standard approaches developed to manage urological patients in epidemic conditions, and clinics operated at their own threat and risk according to internal standards. Our analysis showed that strict adherence to sanitary and hygienic standards and the implementation of anti-epidemic measures provide urological care to patients in full, even in such unfavorable conditions.

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