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Research Article

Evaluation of the Impact of the Pandemic in the Operating Room in 2020: Cross Sectional Study

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ABSTRACT

Purpose: COVID-19 disease caused a rapid pandemic all over the world, and of course, it was affected by this situation in operating rooms. We aimed to retrospectively review and evaluate the operating room records of the operations taken in our operating room during this pandemic period.

Materials and methods: Retrospective records of surgeries performed in our hospital operating room between January and June were reviewed. The first three months of 2020 are the period without COVID-19 pandemic and the next three months are the months of COVID-19 pandemic. The number of operations taken in these two periods were compared. American Soceity of Anesthesia (ASA) risk classifications of the patients undergoing surgery were examined. The anesthesia methods preferred to the patients were examined and recorded.

Results: It was determined that a total of 2008 surgeries were performed between January and June in the operating room. It was observed that majority of patients who were operated before and during the pandemic period were in the ASA 2 group. It was observed that regional anesthesia was preferred in most of the patients.

Discussion: When we looked at the surgeries of the last three months we could clearly see that emergency surgeries were more. It may be a reason why patients do not want to come to the pandemic hospital until their illness progresses or not performing elective surgeries means that patients wait directly and some diseases progress and reach the point of surgery quickly.

Keywords: COVID-19; Pandemia; Operation rooms; Surgery

INTRODUCTION

A pneumonia associated with the novel coronavirus emerged in China and spread rapidly all over the world [1]. In these patients, fever, cough, headache and diarrhea may occur and more than half of the patients may develop shortness of breath. While normal or decreased values are found in blood tests, ground glass opacity and consolidation areas can be observed in thoracic tomography [2]. Elective operations in many hospital operating rooms were restricted first and later only emergency operations were accepted during the pandemic. We aimed to retrospectively review and evaluate the operating room records of the operations taken in our operating room during this pandemic period.

MATERIALS AND METHODS

Retrospective records of surgeries performed in the Kastamonu Training and Research Hospital operating room between January and June were reviewed. The first three months of 2020, January, February and March, are the period without the COVID-19 pandemic, and the next three months, April, May and June, are the months of the COVID-19 pandemic. The number of operations taken in these two periods were compared. Branch-based classification of these surgeries was made. American Soceity of Anesthesia (ASA) risk classifications of the patients undergoing surgery were examined. The anesthesia methods preferred to the patients were examined and recorded.

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Ethical approval

Ethical approval was obtained from the local ethics committee.

Statistical analysis

The data obtained from the patients' records were recorded in the SPSS version 22 (IBM) system. Frequency and ratio analyzes were made.

RESULTS

It was determined that a total of 2008 surgeries were performed between January and June in the Kastamonu Training and Research Hospital operating room. It was found that 1325 of these surgeries were elective and received in January-March. While it was determined that a total of 390 emergency operations were performed between January and March, it was observed that there were no elective surgeries between April and June and a total of 293 emergency operations were performed during these months, which were considered pandemic (Table 1).

The distribution of ASA classifications of patients who underwent surgery in January-June was examined. It was observed that the majority of patients who were operated before and during the pandemic period were in the ASA 2 group (Table 2).

The anesthesia method preferred in the operations performed in January-June was examined. It was observed that regional anesthesia was preferred in most of the patients who were operated before and during the pandemic period (Table 3).

DISCUSSION

Operating rooms are one of the sections of hospitals where service provision cannot be interrupted. Since it is the only hospital in the region, it was a very difficult task to restrict service in our hospital, which serves a large community. The pandemic process management of the hospital became even more difficult as the number of COVID-19 patients coming from the region started to increase.

A patient whose treatment cannot be met due to its geographical location should be sent to the nearest well-equipped hospital for at least 2-3 hours. As such, hospital staff worked with great self-data and tried to treat patients on their own as possible. When we look at the distribution of our patients by branches: We saw a relative increase in the number of acute appendicitis surgeries among general surgery operations.

Collard et al. stated in their study that antibiotherapy could be an alternative to uncomplicated acute appendicitis cases during the COVID-19 pandemic [3]. However, we are of the opinion that this alternative may not have been implemented due to the fear of getting infection from the hospital during the pandemic period and many patients come to the hospital late.

When orthopedic surgeries were examined, we observed a decrease in hip arthroplasties, while an increase in lower extremity trauma surgeries. The reason for this is that hip arthroplasty is often an advanced age surgery, and we think that our patients in this age group are exposed to less trauma and there is a decrease in the

Table 1: The distribution of surgeries.

Surgery department	Operation	Non-pandemic (January-March) Elective (n:1325)	Non-pandemic (January-March) Emergency (n:390)	Pandemic (Aprıl-June) Emergency (n:293)	Total patient (N:2008)
General surgery	Hernia (inguinal, umblikal etc.)	153	7	7	474
	Intestine (ileus, colon, tumor etc.)	4	13	8	
	Spleen-liver-gallbladder	69	6	9	
	Thyroid	17	0	0	
	Anorectal (hemorrhoids, fissure sinus etc.)	34	3	2	
	Appendectomy	12	42	63	
	Breast	2	0	0	
	Abscess-wound	7	1	2	
	Stomach (ulcer, perforation etc.)	0	9	4	
Orthopedics and traumatology	Knee arthroplasty	120	0	0	326
	Hip arthroplasty	49	53	30	
	Arthroscopy (shoulder, knee etc.)	12	0	0	
	Trauma upper extremity	5	6	5	
	Trauma lower extremity	9	10	16	
	Other (foot, hand, wrist, etc.)	7	2	2	

Urology	Kidney and bladder stone	98	10	17	246
	Tour (bladder-prostate)	50	2	1	
	Cystoscopy-ureteroscopy-DJ	43	1	1	
	Other (torsion, hydrocele, trauma etc.)	11	7	5	
Obstetrics and gynecology	Caesarean	104	91	83	330
	Uterus	29	0	0	
	Over	6	3	0	
	Other (Torsion, perineoplasty, ectopic etc.)	6	5	3	
Neurosurgery	Disc Herniation (lumbar-cervical)	54	7	2	119
	Vertebra	28	4	3	
	Brain (bleeding-tumor etc.)	4	10	7	
Cardiovascular surgery	Vascular surgery (varicose veins, by pass etc.)	37	2	0	93
	Emboectomy	35	16	3	
Otolaryngology surgery	Nose (septoplasty, rhinoplasty etc.)	70	1	0	128
	Ear (tympanoplasty etc.)	6	0	0	
	Throat (adenoid, tonsil etc.)	49	1	1	
Plastic and reconstructive surgery	Tumor (Bcc, Scc etc.)	36	0	0	63
	Limb	22	3	2	
Pediatric surgery	Abdominal (appendectomy, hernia etc.)	22	12	10	150
	Urogenital (circumcision, hypospadias etc.)	93	0	0	
	Newborn (atresia, ınvagination etc.)	1	1	0	
	Other (bronchoscopy, burn etc.)	9	1	1	
Gastroenterlogy	Ercp	10	33	0	143
Foreign body	Removal	0	5	2	7
Firearm injury and penetrating stab injury	Multiple surgeon	2	23	4	29

Table 2: Distribution of patients operated between January-March and April-June according to ASA classification.

ASA distribution of patients undergoing surgery	Non-pandemic (January-March)	Pandemic (Aprıl-June)	Total
Asa 1	416	64	480
Asa 2	931	129	1060
Asa 3	305	71	376
Asa 4	55	24	79
Asa 5	8	5	13

Table 3: Distribution of patients operated between January-March and April-June according to ASA classification.

The preferred anesthesia method for surgery	Non-pandemic (January-March)	Pandemic (Aprıl-June)	Total
Sedation	140	71	211
General	735	41	776
Regional	840	181	1021

rate of surgery due to curfews. On the other hand, the increase in the need for lower extremity trauma surgery is thought to have increased these lower extremity traumas due to the fact that the middle age group is more active to meet the needs of the house. Ruggieri et al. examined the orthopedic surgeries in their region and compared them with the previous year, as a result, they found an overall decrease of 30% in all surgical activities compared to 2019 [4].

We observe an increase in urgent operations of kidney and bladder stones among urological surgeries. In fact, this is a false increase. Urolithiasis patients could undergo elective surgery in the non-pandemic period. During the pandemic period, patients preferred to come to the hospital less for fear of infection or physicians gave priority to other treatment methods, although the number of emergency cases seemed to have increased, the total number of urological cases was successfully reduced

In a study by Reza et al. they stated that patients with lithiasis requiring urgent surgery can be evaluated as an emergency situation if they have solitary kidney, acute renal failure, bilateral obstruction, colic resistant to medical treatment, and kidney stones or infected urethral stone [5]. Although there is no significant difference in the number of emergency operations in cesarean operations in gynecology, a decrease in the total number is observed due to not performing elective surgery. In their study, Li et al. reported that 10 (4.6%) of 219 patients with COVID-19 developed acute ischemic stroke and 1 (0.5%) developed intracerebral hemorrhage [6].

In our hospital, we did not observe a significant increase in the number of brain hemorrhage surgeries requiring surgery. We did not observe a significant increase in the number of emergency operations in other surgical clinics.

In our study, we also examined the distribution of ASA classification of our patients admitted to surgery. We think that the ASA distribution of the operated patients may be of regional origin, as the majority consists of ASA 2 patients. Before the operation, the patient's anamnesis is taken, physical examination is made, and evaluated with examinations and graphs. Risk classification is made by considering these evaluations and the characteristics of the surgery. These evaluations are explained to the patient, and possible anesthesia methods are informed before the operation, and consent is obtained from the patient or his relatives. If possible, surgical patients should be tested pre-operatively for COVID-19, but it should be kept in mind that the incubation period of COVID-19 disease may extend up to 4-11 days [7].

While some non-serious symptoms may occur in some of the patients with COVID-19, others may show symptoms such as cough, fatigue and muscle pain. Laboratory findings of severe COVID-19 patients may include lymphopenia, lactate dehydrogenase, ferritin and creatine kinase elevation and alanine aminotransferase (alt) or aspartate aminotransferase (ast) elevation, c-reactive protein (crp) levels above the normal range and increase in d-dimer levels [8].

Radiographic evaluation has an important place in preoperative evaluation. If there are suspicious infiltrations on chest radiography, chest diseases consultation may be requested if necessary, or it may be preferred in differential diagnosis in computed tomography.

In our research, we examined the preferred anesthesia methods for patients who underwent surgery. In their study, Lie et al. stated that regional anesthesia should be considered when surgery is planned for a suspected or confirmed COVID-19 patient because it preserves respiratory function and prevents aerosolization and therefore viral transmission [9]. In our results, we observed that our preferences for regional anesthesia were higher. We support the view that a well-planned and applied regional anesthesia will improve patient management.

In their study, Guan et al. found that 5%-12% of 1099 patients with COVID-19 infection had thrombocytopenia, in other words, platelet values of patients were <150000, and they reported that thrombocytopenia may be associated with COVID-19 disease [10]. In this case, if anesthesiologists are planning regional anesthesia, they should definitely have a complete blood count.

CONCLUSION

When we looked at the surgeries of the last three months, we could clearly see that emergency surgeries were more. There could be a few reasons here. First of all, it may be a reason why patients do not want to come to the pandemic hospital until their illness progresses. Another reason is that not performing elective surgeries means that patients wait directly, and some diseases progress and reach the point of surgery quickly. Within the scope of pandemic precautions, people's more inactive life may have caused an increase in some diseases.

CONFLICT OF INTEREST

None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.

SCIENTIFIC RESPONSIBILITY STATEMENT

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

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