



Medical Tourism Challenges After the Prevalence of COVID-19: The Neurosurgery Field



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Received February 19, 2022; Accepted May 4, 2022; Online Published June 10, 2022

Abstract

Introduction: The COVID-19 pandemic has widely affected medical tourism on a global scale, thereby reducing the number and volume of medical services. Given the importance of this topic, the present study aimed to determine the challenges of medical tourism after the prevalence of COVID-19 in the field of neurosurgery.

Methods: The present descriptive study was conducted by the neurosurgery department of Isfahan University of Medical Sciences, Isfahan, Iran in the first quarter of 2022. Using the convenience sampling method and based on Morgan's table, 500 patients with neurosurgical diseases registered in Medical Tourism companies were identified and included in the study. The data were analyzed in SPSS.

Results: 142 (28.4%) out of 500 patients with COVID-19 were willing to come to Iran for neurosurgical treatment. The most important non-medical reasons included natural attractions (4.37 ± 0.44), cost-effective accommodation (4.03 ± 0.23), and support from a country of destination (place of residence) (3.75 ± 0.22). The most important medical reasons included the short waiting list, the fast treatment response (4.26 ± 0.76), the availability of qualified doctors (3.96 ± 0.27), and the low-cost treatment (3.87 ± 0.53).

Conclusion: The present study focused on the functions and potentials of medical tourism in neurosurgery. It can be more successful by providing the right conditions to improve the current situation.

Keywords: Medical Tourism, COVID-19, Neurosurgery

Citation: Aminmansour B, Mahmoodkhani M, Shafiei M, Mokhtari A, Hematzadeh M, Sheibani-Tehrani D. Medical tourism challenges after the prevalence of COVID-19: the neurosurgery field. Int J Travel Med Glob Health. 2022;10(2):83-87. doi:10.34172/ijtmgh.2022.15.

Introduction

The cost of medical care and availability of resources (workforce and facilities) vary from country to country and build the basis of medical tourism.^{1,2} Medical tourism includes patients who leave their countries to access non-emergency medical care, often surgery.³ Non-emergency neurosurgical operations are among the common causes of medical tourism.⁴

Neurosurgery is a medical specialty that focuses on diagnosing and treating diseases related to the brain, spine, or nerves. Neurosurgeons are physicians who are not only in charge of treating patients and relieving their pain but also following up on their postoperative rehabilitation and psychological condition.⁵ Accuracy in medical methods and tools and the physicians' skills are necessary due to the delicacy of neurosurgery. Therefore, modern technologies and tools based on medical technology can ensure proper

surgeries.⁶ Countries such as Spain and Greece in Europe or China, Turkey, and South Korea in Asia are known as important destinations for neurosurgery tourism.⁷

However, there are many problems for medical tourism, not only in the field of surgery but in all fields, that are not well explained.⁸ For example, the standard of healthcare regulations is different from one country to another.⁹ Patients may be attracted by a low-cost procedure but pay higher costs due to the lack of access to medical records. There are language barriers; thus, patients may be managed by inappropriate medical personnel or inappropriate surgical procedures. Furthermore, legal action will be very difficult in case of negligence or incompetence.¹⁰

The spread of infectious diseases around the world borders remains a potential threat to this industry. As a very vulnerable industry to numerous environmental, political, and socio-economic risks, the tourism industry is used to

crises and resists returning to the normal state.¹¹

The year 2020 began with the outbreak of a new epidemic, which was later named COVID-19 and ranked among the 30 new infections the world had experienced in the last 30 years.¹² It started in China and later spread all over the world. Countries such as the United States of America, Brazil, India, Italy, Spain, France, South Korea, Iran, and many others faced an unprecedented spread and mortality of this disease.¹³

COVID-19 significantly affected the global economic, political, social, and cultural systems. Health strategies and measures (e.g., social distancing, travel bans, social quarantines, “stay home” campaigns, personal or mandatory quarantines, and crowding restrictions) terminated global tourism and recreation.

The nature, conditions, and unprecedented effects of COVID-19 indicate that this crisis is not only different but also can have structural changes and long-term transformation in tourism as a social and economic activity. This disease has left multidimensional and interconnected challenging effects on current values and systems.^{14,15}

The high quality of neurosurgery in Iran has been widely confirmed in the Middle East and beyond, making it a popular destination for surgery; however, challenges, including the prevalence of COVID-19, have affected the progress of this field. Therefore, the present study aimed to determine the consequences of COVID-19 on medical tourism in neurosurgery.

Methods

In the present descriptive study, conducted by the neurosurgery department of Isfahan University of Medical Sciences, Isfahan, Iran in the first quarter of 2022, the statistical population consisted of all patients who had registered for neurosurgery in medical tourism companies.

The inclusion criteria were patients who had registered for neurosurgery in medical tourism companies, had not yet traveled to Iran for treatment, and had consented to participate in the study. The exclusion criterion was the patients' non-consent to participate in the study.

Using the convenience sampling method and based on Morgan's table, 500 patients with neurosurgical diseases were identified and included in the study.

After receiving the necessary permissions, the researchers reviewed the standard questionnaire and posted it online on the Google Forms website. Thereafter, an email was internationally sent to all patients who had registered for neurosurgery in medical tourism companies, stating the authors' desire to answer their questions in the field of neurosurgery tourism.

The email explained the research purpose to the participants, and they were asked to click on the link if they agreed to participate in the study.

The questionnaires were implemented with the help of the medical tourism companies; hence, the correspondence was done, and emails were sent to the patients according to the rules of the companies. The partner companies posted the link to answer the questions on their official Instagram pages and provided information.

These companies included two Indian companies, Apollo Hospitals Enterprise Limited and Aditya Birla Health Services Limited, as well as a company in Malaysia, Samitivej Hospital Group.

The standard questionnaire was taken from the study by Golets¹⁶ in English with 4 yes/no questions and 23 questions about the intention to travel on a 5-point Likert scale (totally disagree = 1 to totally agree = 5), and two fields, medical (11 questions) and non-medical (12 questions). Demographic questions also included age, gender, place of residence, and education level. It should be noted that 23 questions were opened for participants who answered yes to three out of four questions.

Data were collected and analyzed in SPSS version 22. The mean and standard deviation were used to describe data in the quantitative phase, and frequency distribution and percentage were applied in the qualitative phase.

Results

The characteristics of 500 individuals were as follows: 284 individuals (56.8%) were males, with an average age of 52.47 ± 11.36 years. Ninety-five individuals (19%) were Lebanese, and 207 individuals (41.4%) had associate degrees. Two hundred sixty-eight individuals (53.6%) intended to travel to undergo neurosurgery, and the average duration of the disease was 4.25 ± 1.23 years (Table 1).

The link to the next 23 questions about the reasons for traveling was opened for all participants who answered yes to the first three questions. 142 (28.4%) out of 500 patients were willing to come to Iran for neurosurgery during the COVID-19 (Table 2).

One hundred forty-two individuals answered 23 questions on a 5-point Likert scale (totally agree = 5, agree = 4, neutral = 3, disagree = 2, and totally disagree = 1). On this basis, Table 3 presents the patients' average response of 1 to 5 to each question.

The most important non-medical reasons included natural attractions (4.37 ± 0.44), cost-effective accommodation (4.03 ± 0.23), and support from a country of destination (place of residence) (3.75 ± 0.22), respectively. The support from a country of destination meant friendly diplomatic and political relations between the two countries of origin and destination.

The most important medical reasons included the waiting list and treatment response speed (4.26 ± 0.76), the presence of qualified physicians (3.96 ± 0.27), and the low-cost treatment (3.87 ± 0.53) (Table 3).

Discussion

According to the results, various medical and non-medical reasons encourage patients to medical tourism and travel to other countries. Numerous studies have been conducted in various fields of medicine and travel to other countries for treatment, but the prevalence of COVID-19 around the world distinguishes this study from others.¹⁷ The prevalence of COVID-19 disrupted many decisions on a global scale, especially in the tourism industry, as many medical travels were canceled.¹⁶ In this regard, some patients believed that

Table 1. Demographic Information of Participants

Variables	No. (%)	Mean±SD
Gender		
Male	284 (56.8)	-
Female	216 (43.2)	-
Age (years)	-	52.47±11.36
Place of residence		
India	14 (2.8)	-
Pakistan	39 (7.8)	-
Afghanistan	92 (18.4)	-
Syria	87 (17.4)	-
Lebanon	95 (19)	-
Other	94 (18.8)	-
Iranians living abroad	79 (15.8)	-
Education level		
High school diploma and lower	158 (31.6)	-
Associate degree	207 (41.4)	-
Bachelor and higher	135 (27)	-
Type of neurosurgery		
Cerebral	268 (53.6)	-
Spinal cord	232 (46.4)	-
Duration of disease (y)	-	4.25±1.23

Table 2. The respondents' Travel Status

Questions	Yes	No
1. Did you want to travel to Iran for neurosurgery from 2020 to 2022 when there was no travel restriction?	108 (21.6)	392 (78.4)
2. Do you believe that your health will not be significantly affected if you get infected with COVID-19 and your medical travel is more important?	68 (13.6)	432 (86.4)
3. Do you intend to travel to Iran for treatment after the relative reduction of COVID-19?	82 (16.4)	418 (83.6)
4. Have you traveled to Iran for any reason before the spread of COVID-19?	125 (25)	375 (75)

travel and treatment measures were inevitable despite the prevalence of COVID-19, as well as its burden, pain, and complications. The present study investigated the challenges of medical tourism after the outbreak of COVID-19 in the field of neurosurgery. This field has been investigated in a few studies despite its high number of patients.^{18,19}

The results indicated that some neurosurgery patients chose Iran as a medical tourism destination for medical reasons and others for non-medical reasons, and they were even willing to travel to Iran and undergo medical treatment during the outbreak of COVID-19.

Kosaka et al, in a study in Japan, reported that when COVID-19 became widespread and patients could not travel abroad, the treatment of some of them was interrupted, and it also prevented the progress of medical specialists and facilities in countries. In Cambodia, a Japanese investment company established a 50-bed hospital in 14 fields, such as neurosurgery, pediatrics, and emergency, but restrictions due to quarantine and traffic decreased referrals.¹²

Ikwuegbuenyi and Umutoni conducted a study in Africa and reported that African patients had access to only 1% of the neurosurgery labor. The results of this study indicated

Table 3. Reasons for Patients' Travels to Receive Neurosurgery

To What Extent Does Each of the Following Items Affect Medical Tourism in the Field of Neurosurgery?	Mean±SD
Natural attractions	3.48±0.36
Cost-effective accommodation costs	4.03±0.23
Support from a country of destination (place of residence)	3.51±0.19
Quality of accommodation	2.87±0.23
Easy to get a visa	4.37±0.44
Non-medical reasons	
Being Islamic	3.75±0.22
The existence of recreational services	3.39±0.15
Traditional and local foods	3.07±0.18
Cultural proximity	3.39±0.20
Notification of embassies	2.83±0.14
Information technology (IT)	3.08±0.18
Security for tourists	3.26±0.15
Total	3.41±0.50
Waiting list and treatment response speed	3±0.13
Presence of skilled physicians	2.97±0.14
Low cost of treatment	3.96±0.27
Existence of post-operative rehabilitation services	3.87±0.53
Follow-up services	3.17±0.10
Medical reasons	
Low cost of diagnostic measures	2.79±0.31
Presence of modern medical equipment	2.81±0.41
Presence of trained manpower	3.8±0.40
The personnel's ability to communicate with foreign tourists	3.51±0.31
Compliance with health standards	2.73±0.18
Care standards	4.26±0.76
Total	4.58±0.72

that the lack of proper infrastructure, labor, patients' characteristics, personal behaviors, physical factors, socio-economic factors, health costs, and lack of access to services were the causes of patients' travels to other countries for treatment. This result was consistent with that of the present study. It can be concluded that most medical travels are due to low cost and high quality of services.²⁰

A study in Nigeria by Idowu and Fatai Adeniyi indicated that governments in different countries should have laws to ensure that medical tourists receive proper care and follow-up treatment.²¹

In South Africa, Makinde reported that the increase in the use of the Internet and social media, the existence of a legal framework, the improved laws of medical tourism agencies, and skilled human resources were among the factors that improved the medical tourism status.²² Choi and Kim also considered two reasons, i.e., the possibility of recreation and cultural proximity, for the success of medical tourism in Korea.²³

Bulatovic and Iankova reported that the cost of medical tourism services, lack of proper marketing, cooperation between medical service providers and tourism organizations, and efficient medical care networks were important factors of

Research Highlights

What Is Already Known?

Currently, no effective measures have been taken for the tourism situation in the field of neurosurgery.

What Does This Study Add?

It is hoped that by using the results of this study, international cooperation can be planned and fruitful progress can be made in the direction of continuous training of personnel for medical tourism in the field of neurosurgery even during the outbreak of infectious diseases.

medical tourism in the UAE.²⁴ In a study in Taiwan, Dang and Nguyen demonstrated that fluency in English, the availability of skilled surgeons, and reasonable costs were effective factors in improving medical tourism in the field of neurosurgery. Such studies approve the results of the present study and are consistent with the results.²⁵

Governments seek to create new industries for sustainable growth, one of which is medical tourism. The growth of medical tourism has an effective role in developing the economy, social cooperation, and cultural relations that are neglected due to the outbreak of COVID-19. According to the results, different aspects of this tourism should be taken into account, and necessary measures should be taken to improve its current status.

Conclusion

The respondents had a proper understanding of the domain of neurosurgery, its costs, and its availability in Iran. Consistent with the results, the establishment of international cooperation, continuous education, appropriate methods of patient referral, internet surveys, cost-effectiveness and quality of services, raised trust of countries, and conducting national research projects with the participation of the government and the private sector can all contribute to the success of medical tourism in the field of neurosurgery even during the infectious disease epidemic.

Authors' Contributions

BA contributed as the main author with the concept of planning the study. MS and AM contributed in study design, patient selection and follow ups. DST performed the statistical analysis and interpreted the data. MM and MH helped write the manuscript and BA mentored the edition of the final version. All authors read and approved the final manuscript.

Conflict of Interest Disclosures

The authors have no conflicts of interest to declare.

Ethical Approval

The current study was approved by the Isfahan University of Medical Sciences Ethics Committee with the code of IR.MUI.MED.REC.1399.785.

Funding/Support

None.

Acknowledgements

We would like to thank all the neurosurgical attending professors in data collection.

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