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Evaluation of the Iranian national guidelines in management of a biological threat in covid 19 pandemic; what we learnt within 3 years- A narrative review

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ABSTRACT

Background: The emergency department is the first and foremost part of the hospital, which is responsible for accepting and categorizing patients quickly in various crises. In the covid-19 pandemic, designing appropriate procedures and facilities for triage, diagnosis and isolation of suspected and confirmed cases was a high priority for hospital emergencies.

Methods: In a retrospective cross-sectional study from March 2019 to the beginning of April 2022, patients' clinical symptoms were evaluated and analyzed during the protocols issued by the Ministry of Health in Iran.

Results: Since the beginning of the pandemic and following the changes in the conditions and new national and international shreds of evidence, Iran's Ministry of Health has issued more than 11 guidelines in different areas of education, health and treatment. This paper analyzes the course of changes in these guidelines and the management of specific populations during the pandemic.

Conclusion: Risk stratification in patients based on underlying diseases, current clinical status, and availability of hospital resources is one of the most important measures of health systems. Paying attention to biological points in different wards and patient management from triage to appropriate diagnosis and treatment, Prioritizing and allocating resources, proper use of personal protective equipment in medical staff, were important.

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1.INTRODUCTION

The emergency department is the first and foremost part of the hospital, which is responsible for accepting and categorizing patients quickly in various crises. [1] Therefore, simultaneous health and epidemiological perspective were essential on this issue. [2]

In covid-19 pandemic, designing appropriate procedures and facilities for triage, diagnosis and isolation of suspected and confirmed cases was a priority for hospital emergency managers. [3]

In this regard, all the specialties had to follow the guidelines for triage of their own patients; On the other hand, based on changing conditions, the previous protocols updating seemed necessary, which took place from the beginning of the COVID-19 pandemic and during various waves by the Ministry of Health in the Islamic Republic of Iran. [4]

Rapid identification and isolation of patients with COVID-19 in triage unit is important from different aspects. [5] In this situation, patients were examined by triage nurses with a syndromic approach for risk assessment (Tabibi S;2020). Patients' information was recorded in a triage form and isolation of patients will be performed if necessary. [6-9]

Cardiopulmonary resuscitation and emergency intubation of critically ill respiratory patients were immediately performed according to the ESI (Emergency Severity Index) triage guidelines in an isolated room with proper ventilation and airborne precaution. [10] [11]

In February 2020 within the first announcement of the Ministry of Health, uncomplicated patients were discharged from the emergency department with necessary training and follow-up instructions after registering the related documents. [12]

The passage of time and the back of several covid 19 waves showed that the variety of symptoms, course and severity of COVID-19 is not necessarily as the same and predictable. hence, it requires appropriate measures in accordance with the conditions and active and dynamic assessments in the field of triage, diagnosis and treatment.

MATERIAL AND METHODS

In a retrospective cross-sectional study from March 2019 to the beginning of April 2022, the changing protocols issued by the Ministry of Health and Medical Education of the Islamic Republic of Iran was evaluated and analyzed.

Although it seems that five-level triage in countries such as Iran is responsive to proper evaluation of emergency patients under normal conditions, it was necessary to change and adjust the usual triage protocol at the time of the covid 19 pandemics as a biological threat. [13, 14]

At the first step, we expressed a general framework of the contents in the field of admission and triage separately from each notification. Consequently, the specific experiences of the national scientific committee were categorized as a timeline picture. The Iran's national covid 19 Scientific Committee was formed on February 24 2020 by the order of the Minister of Health.

The purpose of this committee was to develop a national guideline for diagnosis, care and treatment of coronavirus and to unify the protocols of different specialized and subspecialty groups in this field. For this purpose, all notifications and instructions (11 protocols) have been collected, extracted and analyzed for more than two years.

Approaching different parts of guidelines (as an upstream document), definitions, high-risk individuals, specific populations and eventually guidelines for dealing with each group was classified. Subsequently, triage related sections were extracted and the protocol changes was evaluated.

RESULTS

More detailed field studies showed how medical staff and monitoring systems could change or modify the current initial guidelines based on the changes in severity, nature and symptoms of disease. Nowadays, according to the experiences, we could explain triage categories and the reason of these changes. It seems that time spending revealed more specific dimensions of COVID-19 and leads to definition changing. (Table 1)

Concomitant with the official announcement of COVID-19 pandemic onset in Iran, the first directive of the Ministry of Health issued on February 26, 2020. It was as an appendix to the "new Coronavirus national directive", focusing on the flowchart of how to deal with patients in and out of hospitals separately. On the other hand, various risk stratification was also reviewed during several instructions. (Table 1)

Table 1: The process of changing the definitions of Covid-19 patients in various announcements of the Ministry of Health

protocol	Suspicious patient	probable patient	terminally patient	Additional definitions	**close contact**
first	Dry cough, chills or sore throat with shortness of breath with or without fever or with upper/lower respiratory symptoms with radiological manifestations in the form of unilateral or bilateral multilobular infiltration in CT scan or simple chest X-ray	Any suspected case who had a history of close contact with a confirmed case of COVID-19 within the previous 14 days - a history of being in areas with an epidemic of COVID-19 - A person with pneumonia who, despite proper treatment, has an inappropriate clinical response and the patient's clinical condition becomes more acute and serious in an unusual way and at an unexpected speed.	Isolation of the Covid-19 virus (positive PCR test) from a person with respiratory symptoms	-	-
second	no modify	no modify	Isolation of the COVID-19 virus from a person with respiratory symptoms	-	-
Third	The above cases in addition (SARI	- Patient with respiratory symptoms	Laboratory	-	-

	syndrome) which have at least one of the following characteristics: - History of travel/residence in provinces where local transmission of the virus has been reported, within 14 days before the onset of symptoms - History of close contact with a probable/definite case of the disease, within 14 days before the onset of symptoms - Healthcare workers with a history of dry cough or chills or sore throat with or without fever when in contact with patients have been respiratory (regardless of the severity of the symptoms)	with radiological manifestations in the form of unilateral or bilateral multilobular infiltration in CT scan or chest X-ray - Previous definitionsلی	confirmation of infection caused by the 19 COVID virus regardless of the presence of clinical signs and symptoms and close contact		
Fourth (guidelines for children)	Dry cough or chills or sore throat with shortness of breath with or without fever that cannot be explained by another etiological factor. - The patient has fever or respiratory symptoms (of any severity), diarrhea, vomiting, heartache, headache, restlessness alone or Kawasaki-like symptoms. - Have a history of close contact with a probable/definite case of Covid-19, within 14 days before the onset of symptoms.	Previous definitions	A patient with the above signs and symptoms who has laboratory confirmation of COVID-19 has a positive PCR test.	A patient who has a negative PCR for SARS-CoV-2 and his clinical, paraclinical and imaging findings can be justified by other diagnoses other than COVID-19.	Any person with the following conditions who has been in contact with the sick person from 2 days before to 14 days after the onset of symptoms is considered as a person at risk in is considered - Face-to-face contact with a person infected with COVID-19 at a distance of less than one meter and for more than 15 minutes - Direct physical contact with a person infected with COVID-19 without using appropriate personal protective equipment - Staying in a closed place with a person infected with COVID-19 (for example, a shared workplace, classroom, residence or convalescent home) for any period of time - Traveling next to a person with COVID-19 with a distance of less

					than one meter in any vehicle
the fifth	Similar to the third instruction	- Clinical and radiological manifestations: same as before	no modify	-	Hospital contact with the patient, including the direct provision of clinical services by the hospital staff to the probable/definite COVID-19 patient, contact with Another member of the treatment team who has been infected with COVID-19 - Someone from the family has taken direct care of a suspected/probable/definite COVID-19 patient - Being a colleague or classmate with a person infected with COVID-19 or any occupational contact with a patient infected with COVID-19 in a common closed space (contact for more than 15 minutes at a distance of less than 2 meters)
the sixth	no modify	with radiological manifestations that are highly suggestive of covid 91 disease from the radiologist's point of view, such as one or two-sided multilobular infiltration, especially infiltration of the parafemoral areas in the CT scan of the lung or Chest radiography and ground glass in lung CT scan (clinically confirmed) - A person suffering from pneumonia who has an inappropriate clinical response in spite of appropriate treatments and in an unusual way Unexpected speed of the patient's clinical condition becoming more acute and worse or death (Clinically confirmed) • Inconclusive result: The result of the person's PCR test is not known, it is not reported as positive or negativeت.	no modify		

the seventh	no modify	with radiological manifestations that are strongly suggestive of covid-19 disease from the radiologist's point of view, such as one- or two-sided multilobular infiltration, especially infiltration of the peripheral areas in lung CT scan or chest radiography and ground glass in lung scan Clinically confirmed - A person with pneumonia who, despite proper treatment, has an inappropriate clinical response and the patient's clinical condition becomes more acute and worse or dies in an unusual and unexpected manner (Clinically confirmed)	no modify		Added this item to the previous ones: Any occupational contact with a patient infected with Covid-19 in a closed space Subscriber (call for more than 15 minutes at a distance of less than 2 meters)
Eighth	A)A patient who has clinical symptoms and epidemiological criteria: Clinical findings: -Sudden onset of fever and cough - Sudden onset of at least three or more symptoms such as fever, cough, general weakness/extreme fatigue, Headache, muscle pain, sore throat, runny nose, shortness of breath, anorexia/nausea/vomiting, diarrhea, Loss of consciousness Epidemiological evidence: - Staying, working or traveling to areas where there is a possibility of the virus circulating (such as accommodation centers, crowded places, conferences and ceremonies, health-treatment centers, etc.) during the last 14	no modify	no modify	Death caused by covid-19 in the form of probable or definite death in a person that is clinically due to covid-19 disease and does not have another specific reason, unrelated to covid (such as accidents, etc.) and a complete recovery period between Active covid-19 disease and death should not exist.	- Face-to-face contact at a distance of less than 1 meter and for at least 15 minutes - Direct physical contact with a possible or definite person - probable or definite patient care without using appropriate personal protection equipment Or - In other situations, an assessment is made based on the possibility of regional transmission

	days B) A person with SARI acute respiratory disease with the onset of symptoms within the last 10 days who needs hospitalization.				
ninth	Similar to the eighth instruction	Similar to the eighth instruction	no modify	no modify	no modify
the tenth	no modify	no modify	no modify	no modify	no modify
Eleventh	no modify	no modify	no modify	no modify	no modify

Management of specific patients in pandemic

In these guidelines, immunocompromised patients including those who treated with corticosteroids, chemotherapy, malignancies, organ transplantation and HIV patients were defined as high-risk groups. However, from protocol six onwards, people with HIV were excluded from the high-risk category. Gradually, it became clear that there was no evidence to suggest that people with HIV were more likely to develop the coronavirus infection or that to develop more severe complications, but it does not mean that they are more likely to develop a lighter disease. Therefore, it recommended to carefully observing all precautions and preventive measures.

Corticosteroid consumption was also more accurately stated in the sixth protocol so that corticosteroid therapy (>20mg/d prednisolone over two weeks or an aggregate dose >600 mg of prednisolone equivalent) was considered as immunodeficiency. Patients with underlying diseases such as cardiovascular disease, hypertension, respiratory diseases, uncontrolled diabetes (HbA_1C > 7.6%), BMI>40 and chronic renal failure were added as specific cases in this issue.

Evidence-based management

Guidelines preliminary evidences showed paying special attention to dyspnea and fever, which were perhaps the most important criterion for identifying and triage the patients.

A- In case of dyspnea or oxygen saturation level less than 93%, the patient should have referred to one of the selected specialized centers (emergency department or ward assigned to Covid 19 patients).

B- If a high-risk person does not have dyspnea, but has a fever (more than 37.8), he/she should be evaluated radiologically.

One or two-way infiltration of the lungs in thoracic graph (CXR) or bilateral patchy infiltration and ground glass in CT-scan required referring patients to specific centers. People who were treated by outpatients were followed up and recorded by health care providers on a daily basis and in case of exacerbation of symptoms of fever cessation or changes in the level of consciousness, it was necessary to be referred to selected specialized centers immediately.

C- It seems that from the very beginning of the pandemic, attention to monitoring and active care of patients, even at home, has been considered by the Ministry of Health and it is even recommended to perform CBC and CRP in patients without fever and with mild respiratory symptoms without dyspnea.

The second version of the national directive was approved by the Iranian Scientific Committee within one week after the first directive and on March 12, 2020. (Table 1)

On the other hand, all the protocols communicated had been stipulated that in case of treatment-resistant hypoxia, decreased level of consciousness, hemodynamic instability, hypercapone-respiratory fatigue or at the diagnosis and discretion of the relevant specialist, the patient should be transferred to the intensive care unit (ICU).

In the second protocol, the triage of pregnant women was also considered. Thus, gray triage (triage of Crohn's patients) was established in the pre-routine triage stage of the hospital.

The challenge in this particular group was exposure to critically ill pregnant patients (level 1 or 2 triage) who should not be waiting for lateral covid-19 evaluations.

In the third version of the guidelines published in the third week of the COVID-19 epidemic in Iran, although definitive cases were subject to isolation of COVID-19 virus, but according to the existing guidelines at the time, the number of diagnostic virology laboratories in the country with the capability of PCR testing has not been enough. Therefore, in the first wave of COVID-19 in The country in March 2019 and especially in its first weeks, the diagnosis was based on history and history of exposure as well as clinical symptoms and in the next, based on evidence of pulmonary involvement in simple graph (or lung CT scan). In this stage, due to the increase of patients and the frequent referrals of hospital emergency departments, attention to selected outpatient clinics and private sectors also increased and permission to enter these centers and prescribe special drugs related to COVID-19 was granted.

Furthermore, in this communiqué, more complete definitions of disease manifestations and suspicious and probable cases were presented. (Table 1)

The fourth notice was drafted and communicated about a month after the onset of pandemic and on March 26, 2020 in the country. (Table 1) Providing services to patients at this time focused more on providing the most services on an outpatient basis, while it was emphasized that critically ill pulmonary patients should not be neglected.

The opinion of the general public and even some experts was that with the onset of the heat season, somewhat reduced the severity and severity of the new coronavirus and even the pandemic ended, but the passage of time and changes in the

nature of the virus completely rejected this notion.At this time, due to the great experiences that had been achieved at the national and international level, gradually the provision of health services is also undergoing better order and organization. It was found. Pulmonary CT scan was needed in high-risk group patients with fever (T≥37.8) due to the high prevalence of pulmonary involvement and subsequent complications. The first wave of COVID-19 was 19, but due to the close distance of the previous notification (March 9, 2020) to the April 2020 protocol, there was no specific change in the protocols and the process of admission and hospitalization of patients (Patient Flow).

Until now, due to the lack of comprehensive virology testing in the country, the initial diagnosis was often based on clinical symptoms and radiological evidence, including CT scans. It was necessary to pay enough attention to the underlying diseases of the patient at this time and if necessary, specialized consultations were requested. Thus, based on the experiences gained based on vital signs and some laboratory findings, the severity of COVID-19 was somewhat predictable and even patients who could be critically ill based on these factors were identified and placed in intensive care in the near future. (Table 2)

Table 2: Factors predicting severe disease of Covid-19.

Vital sign
Respiratory rate>24 Heart rate>125 Beats/min SpO2<90% on ambient air
Laboratory findings
D-dimer>1000 ng/ml CPK>twice upper limit of normal CRP>100 LDH>245 U/I Elevated troponin Progressive lymphopenia High ferritin (Ferritin>300 ug/L)

On April 27, 2020, the fifth version of the National Coronavirus Directive was approved by the National Scientific Committee. (Table 1) With the passage of the country from the first wave of COVID-19 in more than two months, the recommendation to prescribe anticoagulant drugs based on new evidence, the use of personal protective equipment, how to infect and return to work and mental health arrangements in COVID-19 conditions, were new challenges that gradually became public.

Also, in this instruction, the triage of pregnant women was updated and according to the obtained experiences, the symptoms and course of the disease were described more broadly and those infected with COVID-19 were divided in terms of risk based on respiratory rate, rate and severity of pulmonary involvement in imaging as well as conditions of sepsis or organ failure.

The sixth version of the Ministry of Health's communiqués with regard to the diagnosis and treatment of COVID-19 in children was approved and communicated on June 25, 2020. (Table 2)

In this protocol, it was suggested that children suspected of coronavirus-like symptoms be transferred to the triage ward for these patients by observing a distance of at least one meter apart and with a mask. On June 28, 2020, the seventh edition of covid-19 guidelines was approved by the National Scientific Committee. (Table 3)

Table 3: Classification of different phases of the disease of Covid-19 according to clinical symptoms and its severity

No sign	Primary infection	Respiratory		Exacerbation of inflammation
No sign	Mild	Moderate	Severe	Very severe
Ambulatory		Hospitalization		Intensive care
No sign with positive PCT test	Signs in favor of Covid19 Stable vital signs SpO2≥93%	Dyspnea, chest pain and pressure with or without fever (≥38 C) 93%>SpO2>90%	Progressive respiratory symptoms (RR>30) SpO2<90% PaO2/FiO2≤300mmHg Increased A-a gradient More than 50% lung involvement in CT-SCAN	Respiratory failure SpO2≤88% Shock Need mechanical ventilation Multiorgan failure

It is not possible to properly understand the exact boundary between the different stages of the disease and the overlap of symptoms may also exist, and on the other hand, changing the phases of the disease is not necessarily in the order of the above stages, and the person may reach the advanced stage from stage one quickly and uneavoury. It is an important point that experienced nurses in triage should understand it based on the history and course of symptoms and Triage and direct the patient properly.

In the seventh version of the protocol and extensively stated how triage in pregnant women in COVID-19 pandemic at the time of arrival to the hospital and how to screen this group on an outpatient basis. Pregnant patients at the beginning of triage in the emergency department were initially evaluated

based on suspected symptoms of corona, history of contact with Crohn's patients and midwifery problems.

In addition to all the above mentioned in the previous notifications, assessing the normality of maternal and fetal status based on gestational age and severity of respiratory symptoms were among the most important criteria in this communiqué. Therefore, it was recommended to evaluate the severity of COVID-19 at the beginning of the triage of symptomatic pregnant women and to evaluate pregnancy in the next stage and to evaluate and refer cases without respiratory symptoms based on midwifery problems and according to the guidelines for the health of pregnant women.

Special patients in covid-19 pandemic

However, until the seventh protocol was developed, there was no definitive guidance by reputable associations of cancer care and treatment about the challenges and problems of patients with cancer during COVID-19. But for the first time and after several months of the onset of COVID-19 pandemic, the discussion of malignant patients as an annex ward was discussed. [15]

However, this observation alone could not have been a reason for the hypothesis that people with malignancy are at greater risk if they develop COVID-19. [16, 17]

Predicting the serious shortage of medical staff in COVID-19 pandemic conditions on the one hand and increasing the risk of treatment of malignancies in this period on the other hand, posed an important challenge in dealing with this particular population. The challenge was to provide anti-malignant treatments to the patient at the right time and in the best possible safety conditions. On the other hand, postponing routine referrals of these patients was strongly recommended. Telephone triage and prioritization of cancer patients for treatment, based on severity, type of malignancy and type of treatment could help this issue.

Also, the risk of delay in untreated cancer should be measured with the risk of treatment leading to COVID-19 and coincidence of immunodeficiency. The recommendation of this protocol is to reduce the time of immunotherapy and treatment periods and even to convert injectable therapies into oral and subcutaneous treatments and, if possible, continue treatment at home in order to minimize the risk of transmission of nosocomial infections.

In another part of the seventh development, the issue of immunocompromised patients and organ transplantation was discussed. Therefore, considering the proposed national treatment regimens, the considerations of organ transplant patients in COVID-19 were updated. In these patients, fever could not be seen, so it was recommended that in case of strong clinical suspicion of COVID-19, similar treatment of other patients was started.

In protocol 8 in September 2019, definitions of suspected and probable patients were divided based on epidemiological findings and some frequent symptoms such as severe loss of sense of taste or smell along with laboratory and radiological findings. (Table 1)

Deaths from COVID-19 in the form of death in a probable or definite person who is clinically due to COVID-19 and has no other specific reason, unrelated to COVID-19 (such as accidents, etc.) and there should be no complete recovery period between active COVID-19 and death.

The protocol showed that there is no evidence that people living with HIV or who are infected with COVID-19 are more likely to develop more severe complications, but they should take all precautions and precautions carefully. This was more important in HIV patients with advanced disease (CD < 400). Like other people in the community, elderly people with HIV or people with a background of heart or lung disease, they may be more susceptible to corona disease or more severe complications. Also, in high risk groups, obesity criteria are BMI > 30 obesity.

In this protocol, except for groups with strong evidence of exacerbation, asthmatic patients (moderate to severe), hypertension, pregnancy, smoking and consumption of corticosteroids and other immunospersio drugs (more than 20mg/d prednisolone over two weeks or a aggregate dose of more than 600 mg of prednisolone equivalent) were stated as groups with moderate evidence of covid-19 exacerbation.

From December 2020 to January 2021, during one year, the last three guidelines of the Ministry of Health in the field of diagnostic and treatment measures of COVID-19 were communicated. In fact, the three protocols 9 to 11 have practically summed up the signs and symptoms, expressing the latest changes in treatment protocols based on the experiences and evidence of the previous two years. (Table 1)

Thus, the Ninth Protocol completed the previous guidelines in December 2020, followed by the tenth version of the Ministry of Health's directive published in June 1400. In the 10th edition, patients were divided into several wards including non-severe disease, moderate to severe disease, severe disease and finally critical illness (Fig 1)

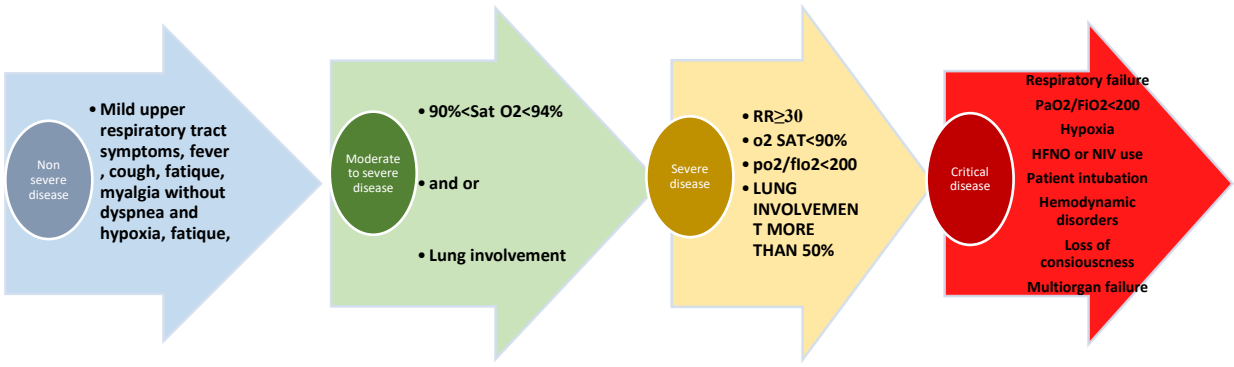

Figure 1: Completion of the definitions and course and severity of symptoms of COVID 19 patients

In compiling the eleventh edition as the latest guideline of the Ministry of Health (although another preventive guide was published in 1401) and providing treatment recommendations in January 1400, from world-renowned guidelines including NIH, WHO, IDSA BMJ, ERS to be used

. Undoubtedly, studies on preventive aspects, care and treatment of COVID-19 are progressing and different recommendations may have been made in some other studies.

During this period, the Scientific Committee of the Ministry of Health of the Islamic Republic of Iran tried to provide the most usable and accessible medical recommendations for the national medical staff by updating the national guidelines. In these definitions, the criteria for dividing patients at the beginning of the referral on the three main factors of oxygen saturation level, severity of clinical symptoms and general present of the patient, as well as attention to pathologies and the amount of pulmonary involvement in radiography or C T-scan is emphasized.

Subsequent epidemiological studies showed that about 10% of patients were responsible for more than 80% of virus transmission cases. This indicates that identifying and preventing events that could pose a risk of "pervasive" transmission of the virus (super spreading) is of great importance in controlling the COVID-19 epidemic.

The protocol emphasized the main control of COVID-19 with vaccination and the implementation of strict preventive measures and compliance with health protocols. Providing appropriate training and correct information to different groups of people (Risk communication) and physicians plays a key role in empowering different populations about COVID-19, with the aim of accompanying all people in participating in the promotion of public vaccination and preventive measures to control the COVID-19 pandemic.

DISCUSSION

This large-scale epidemic has affected the world's health infrastructure. Due to the changing nature of COVID-19 and the available evidence, protocols for how to manage diagnostic and therapeutic diseases also changed several times. Accordingly, local, national and even global protocols were changed. (Chen, X.; 2020) though scientists had experienced similar cases such as SARS and Mers in the past decade. [18] However, due to limited and sometimes local conflicts, these cases have never been comparable to the current pandemic. [19-21]

During the first weeks of the incidence of the disease in Iran, many patients with fever and respiratory symptoms referred, but over time and increasing its prevalence worldwide, most of the patients referred had no fever. It seems that the symptoms of the virus have changed over time, which confirmed the occurrence of the next new varians. [22]

In covid-19 pandemic, the importance of paying attention to important differential diagnoses and complications at the time of referring patients to the emergency room was doubled, because many patients could have referred to the emergency room with similar symptoms or concurrent with COVID-19 infection, and insufficient accuracy in the primary triage, history and in the next step, complementary assessments could have adverse consequences. Internal and international published articles confirm the need to pay more attention to cardiopulmonary emergencies such as acute myocardial infarction, brain and pulmonary embolisms in triage of patients referred to the emergency department. [12]

In the Covid-19 crisis and in hospitals receptive to Crohn's patients, the establishment of quarantine wards and the establishment of preventive and control systems for patients were strongly recommended, as other hospitals could accept and treat non-Chronologic patients. The ideal situation in biological crises is that the conditions and location of the establishment and even the hospital of respiratory patients are as distinct from others as possible.

In order to prevent the occurrence and spread of infection in the hospital, designing some field and field hospitals was necessary. In the meantime, the experiences of some countries such as China in the creation and development of field hospitals (Fangcang) are noteworthy in this design, various basic structures such as triage and isolation, the planning of the primary care unit, how to screen and quick access to the emergency and public health departments were considered. [23]

One of the most important challenges in covid-19 pandemic was exposure to high risk patients along with high risk symptoms (Red flag), on the one hand, there are signs (risks) that can somehow threaten the patient's life in emergency situations (acute respiratory manifestations) and on the other hand, high risk patients such as people with drug-induced immunodeficiency or underlying diseases should not be forgotten among the overcrowding of emergency patients. [8]

The care and treatment of trauma victims in the emergency room is another challenging aspect of the Covid-19 pandemic, which varied the level of care depending on the condition of the injured and the severity of the injuries. [24] The important point is that nothing can ultimately replace the doctor's diagnosis and judgment on the patient's bedside, so physical examination and accurate biography have been emphasized at all times. [25]

CONCLUSION

The coronavirus outbreak was a serious challenge in the emergency department from the beginning, because it is an inlet and main ward of the hospital and on the other hand, it is the primary symbol of evaluation of its functional indicators, thus, the onset of COVID-19 pandemic, like any other biological threat, caused a change in the routine and routine of this department. [26]

Risk stratification in COVID 19 patients based on underlying diseases and current clinical status of the individual, availability of hospital resources, etc. One of the most important measures of health care systems. On the other hand, excessive attention and compulsion of physicians and medical staff to implement the guidelines regardless of the conditions, facilities and access, can lead to over-admission of patients and increase the risk of transmission of nosocomial infection and on the other hand, burnout of medical staff.

This issue in the following waves also causes the impossibility of admission of patients in need of hospitalization due to saturation of hospital beds, of course, this discussion should not lead to the development of experimental treatments without sufficient evidence by physicians, so it is necessary to localize

the international experiences and guidelines first based on the conditions and facilities of each country and the management of each patient should ultimately be done based on the opinion and decision of the physician.

Due to the capacity of hospital wards and existing limitations, we have witnessed an important change in diagnostic and therapeutic policies. In pandemic conditions, some common treatment programs were no longer effective and needed to be modified or modified. [27]

Paying attention to biological points in different wards, patient management from triage and diagnosis to appropriate treatment was doubled. Before any admission of non-emergency patients, prioritizing and allocating resources and regular monitoring of the proper use of personal protective equipment of the medical staff, types of infection control and ensuring personnel training about a variety of respiratory devices and ventilators, is part of the process of assessing the fight against COVID-19 infection. [28]

The extensive experiences of COVID-19 pandemic showed that due to the expansion of communities and the complexity of the subject, designing flexible structures in hospital triage is a multidisciplinary task and requires cooperation and teamwork, since this includes various aspects such as location selection, prioritization and accessibility to resources, infection control, selection of appropriate and relevant medical staff and many other factors, including comprehensive instructions and several other factors. Next requires. [29-33]

Also, the number and type of personal protective equipment (PPE) to protect health care workers and even patients against unnecessary exposure to infection resources were among the goals that were prioritized in the world's health systems. [34]

The classification of COVID-19 into different stages is solely for the evaluation of the patient at the time of examination, and there can be no precise boundary between the different stages of the disease and the overlap of symptoms. Also, it is not always possible to change the condition in order of stages, and the person may reach the severe phase of the disease from a mild stage quickly and suddenly, or stop at the very early stages and move towards recovery. In cases of mild illness, the majority of patients recover without specific treatment.

Evaluation of the patient's condition is based on the total clinical signs and symptoms of the patient and basically, once checking the amount of peripheral blood oxygen saturation, it is not easy to determine the stage of the disease. In addition to the patient's clinical status, oxygen saturation, vital signs and radiological findings will help to determine the severity of the disease.

It seems that despite all the limitations and problems, the Islamic Republic of Iran, based on the existing evidence-based health policies of the country, was able to regularly monitor and manage the country's pandemic and the protocols tailored to the type, severity and number of patients at specified intervals have been communicated to the medical universities of the country. It can be used as a successful document in possible future contingence rums.

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CONFLICT OF INTEREST

There is no conflict of interest in this study.

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