Real-world diagnostic value of a nationwide standardized COVID-19 triage chart in Turkey

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Advances in Clinical and Experimental Medicine, ISSN 1899–5276 (print), ISSN 2451–2680 (online) *Adv Clin Exp Med*. 2022;31(9):965–971

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Funding sources
None declared

Conflict of interest
None declared

Received on January 25, 2022
Reviewed on March 19, 2022
Accepted on April 15, 2022

Published online on May 4, 2022

Abstract

Background. Effective triage is critical during the coronavirus disease 2019 (COVID-19) pandemic. An appropriate triage plan is crucial to direct suspected COVID-19 cases to a designated area, in order to separate such patients from other patients and staff.

Objectives. To report the diagnostic value of the "Possible Coronavirus Disease 2019 (COVID-19) Case Questioning Guide for Outpatients", a nationwide standard triage chart, and of the individual questions within the triage chart for detecting COVID-19 in patients admitted to our hospital.

Materials and methods. A total of 39,681 outpatients admitted to our hospital between April 1 and April 30, 2021, underwent triage questioning. The triage chart consisted of 3 symptom questions and 4 contact and travel questions. Patients who responded "yes" to at least 1 question were referred to the pandemic area; others were considered low-risk and did not undergo routine COVID-19 polymerase chain reaction (PCR) test.

Results. Briefly, 3529 outpatients were referred to the pandemic area; among them, 1055 were PCR-positive. Among 36,152 low-risk patients, 94 were PCR-positive. The sensitivity of the triage chart was 91.82%, specificity was 93.58%, positive likelihood ratio was 14.30, and negative likelihood ratio was 0.09. Triage questions were in moderate agreement with PCR results (Cohen's Kappa: 0.429, $p < 0.0001$). The diagnostic value of the triage chart was mainly attributed to the questions regarding possible COVID-19 infection symptoms rather than contact history. However, the questions included in the triage chart had none to slight agreement with the PCR test results in the pandemic outpatients.

Conclusions. The triage chart has high sensitivity and specificity for discriminating possible COVID-19 cases in all outpatients, but has unsatisfactory diagnostic value for predicting PCR positivity in pandemic outpatients. Therefore, the current triage chart should be used accordingly, i.e., to define possible COVID-19 cases rather than PCR-positive cases. Further studies regarding COVID-19 triage for possible and PCR-positive cases should also focus on the individual diagnostic value of less prevalent symptoms.

Key words: COVID-19, coronavirus, triage, viral pneumonia

Cite as
Öztürk R, Tazegul G. Real-world diagnostic value of a nationwide standardized COVID-19 triage chart in Turkey. *Adv Clin Exp Med*. 2022;31(9):965–971. doi:10.17219/acem/149243

DOI
10.17219/acem/149243

Background

Coronavirus disease 2019 (COVID-19) has become an important emerging health problem worldwide, as it spreads rapidly, causing a pandemic and a staggering number of deaths. To prevent transmission and spread, which is an essential step in fighting the disease, people who are suspected of COVID-19 infection should be tested and those diagnosed with the disease should isolate themselves early.[1,2]

Hospital transmission of COVID-19 is widely recognized, and although the mode of infection remains unclear, ward-based transmission is highly suspected.[3] Nosocomial transmission carries the risk of infecting susceptible patients with preexisting medical conditions, who are at higher risk of severe illness and death due to COVID-19 infection.[4] Since hospitals are among the areas where people with confirmed or suspected COVID-19 infection are likely to encounter other patients and spread the disease, patients should be assessed at the hospital entrance according to an appropriate triage plan, and patients who are suspected of COVID-19 infection should be directed to a designated pandemic outpatient area to separate them from other patients and staff. A fast and effective triage is critical for early treatment, cohorting and effective allocation of hospital resources.[5]

Objectives

Our hospital, a 300-bed secondary care center serving a population of approx. 300,000, underwent reorganization at a procedural level, and a designated triage unit has been established at the entrance to the hospital to screen and refer potential COVID-19 cases to the pandemic outpatient unit. Triage units of all hospitals in Turkey implemented a routine questioning tool for COVID-19 symptoms and contact using a standard triage chart named "Possible COVID-19 Case Questioning Guide for Outpatients", created by the Turkish Ministry of Health at the beginning of the COVID-19 pandemic. Although many studies identify predictors of critical illness,[6–9] the information about available criteria for identifying patients infected with COVID-19 in a triage setting is limited. In this study, we aimed to report the real-world data for the diagnostic value of the "Possible COVID-19 Case Questioning Guide for Outpatients" triage chart, and of the individual questions within this chart for detecting COVID-19 in patients admitted to our hospital.

Materials and methods

This retrospective descriptive study was conducted in adherence to the Declaration of Helsinki by obtaining data usage permission from Ankara Polatlı Duatepe State Hospital Administration (Ankara, Turkey). The researchers were provided with fully anonymized data for the study. The Etlik Zübeyde Hanım Gynecology Training and Research Hospital (Ankara, Turkey) Hospital Ethics committee approved this study (approval date: June 9, 2021, approval No. 62). The necessity of written informed consent was waived in this retrospective study.

Study setting

Since the beginning of the COVID-19 pandemic, all patients admitted to our center have been routinely questioned for COVID-19 contact and symptoms with a standard triage chart. The healthcare personnel routinely carried out this questioning using the "Possible COVID-19 Case Questioning Guide for Outpatients" triage chart while positioned at the hospital entrance, wearing a gown, medical mask, face shield, and goggles. During the triage procedure, healthcare personnel also measured each patient's temperature [°C] and peripheral capillary oxygen saturation (SpO_2). The "Possible COVID-19 Case Questioning Guide for Outpatients" triage chart consists of 7 questions: the first 3 questions concern the patient's complaints, and the subsequent 4 questions cover the contact and travel history. The 7 questions are as follows:

1) Do you have a fever or a history of fever?
2) Do you have a cough?
3) Do you have shortness of breath, sore throat, headache, myalgia, loss of taste and smell, or diarrhea?
4) Have you been abroad in the last 14 days?
5) Have any of your relatives/household members come from abroad in the last 14 days?
6) Have any of your relatives/household members been hospitalized for respiratory disease in the last 14 days?
7) Have any of your relatives/household members been diagnosed with COVID-19 in the last 14 days?

Data acquisition

The COVID-19 triage charts of all outpatients admitted to our hospital between April 1 and April 30, 2021, were evaluated retrospectively. No exclusion criteria were employed; triage questioning was applied to all patients during the study period, including those with severe illness (e.g., intubated, unresponsive patients). As a hospital rule, data regarding the patient's symptoms and travel and contact history were obtained from the patient's relatives if the patient was unresponsive. In rare instances where it was not possible to obtain a clear history, severely ill patients were assumed to have a positive triage questioning and were referred to the pandemic outpatient clinic. Patients who responded "yes" to at least 1 of the questions during the triage were referred to the pandemic outpatient clinic located within an isolated area of the hospital. The age and gender of these patients, temperature and SpO_2 measurements, answers to the questions in the triage chart, and polymerase chain reaction (PCR) test results were collected

retrospectively from the data in the triage charts. Patients with a fever higher than 38.2°C were considered positive for question 1, and patients with a SpO_2 lower than 92% were considered positive for question 3. After triage, cases of all patients with suspected COVID-19 were discussed by a multidisciplinary team consisting of consultants in internal medicine, infectious disease and pulmonology, and were diagnosed and treated according to the recommendations of Turkish Ministry of Health. A COVID-19 PCR test served as a standard for diagnosis. In the case of an initial negative or indeterminate PCR assay, repeat testing was routinely performed at intervals of 1 day or more. Among these patients, those found to be PCR-positive for any reason within 14 days of initial hospital admission were considered positive for COVID-19 infection and positive for the COVID-19 triage, and treated accordingly. Patients who responded "no" to all 7 questions were considered low-risk during triage; such patients were directed to a relevant clinic to be examined further. Low-risk patients did not undergo routine PCR screening; it was ordered only if a patient was in preoperative evaluation, developed a new symptom or if contact screening was necessary. Among such patients, those found to be PCR-positive for any reason within 14 days of initial hospital admission were considered positive for COVID-19 infection and false negative for the COVID-19 triage, and treated accordingly.

Triage results were analyzed using a 2-step approach. First, the sensitivity, specificity, and positive and negative likelihood ratios of the triage chart for COVID-19 infection were assessed as a whole. Second, all individual questions on the triage chart were separately analyzed for sensitivity, specificity, and positive and negative likelihood ratios within the triage-positive patient group and all admitted patients.

Statistical analyses

The SPSS statistical software (IBM SPSS for Windows v. 23.0; IBM Corp., Armonk, USA) and MedCalc Diagnostic Test Evaluation Calculator (MedCalc Software, Ostend, Belgium) were used for data analysis. Continuous variables were expressed as mean and standard deviation (SD), and categorical data were expressed as values and percentages. In the comparative analysis, χ^2 tests were performed for the categorical data. Sensitivity and specificity (presented as percentages) and positive and negative likelihood ratios (with 95% confidence intervals (95% CIs)) were calculated using MedCalc online Diagnostic Test Evaluation Calculator (https://www.medcalc.org/calc/diagnostic_test.php). Confidence intervals for sensitivity and specificity were "exact" Clopper–Pearson CIs, while CIs for the likelihood ratios were calculated using the "log method".[10,11] The receiver operator characteristics (ROC) curve analysis and curve method were used to determine the area under the curve (AUC). An inter-rater reliability analysis using Cohen's kappa statistic was performed to determine the consistency between the triage questions and PCR results. For all statistical tests, $p < 0.05$ was accepted as the limit of statistical significance.

Results

A total of 39,681 outpatients were admitted to our hospital between April 1 and April 30, 2021. All patients have undergone "Possible COVID-19 Case Questioning Guide for Outpatients" triage questioning. Of the 39,681 patients, 22,181 (55.8%) of the patients were male, and 17,500 (44.2%) were female. The mean age of the patients was 38.1 ±15.8 years.

Following the triage, 3529 patients (8.8% of all admissions) were referred to the pandemic outpatient clinic. Of these patients, 1055 (29.9% of the patients referred to the pandemic outpatient clinic and 2.6% of all admissions) were PCR-positive. Among the 36,152 patients who were considered low-risk after triage questioning, 94 patients (0.26% of low-risk patients and 8.1% of all PCR-positive cases) were found to be PCR-positive for COVID-19. The responses to the questions from the "Possible COVID-19 Case Questioning Guide for Outpatients" chart are presented in Table 1. The most common positive responses concerned

Table 1. Responses to the questions for "Possible COVID-19 Case Questioning Guide for Outpatients" triage chart

Question	Yes, n	Positive % within pandemic outpatients	Positive % within all outpatients
Q1: Fever or a history of fever	996	28.2	2.5
Q2: Cough	2164	61.3	5.4
Q3: Shortness of breath, sore throat, headache, myalgia, loss of taste and smell, or diarrhea	2566	72.2	6.4
Q4: Abroad travel in the last 14 days	5	0.14	0.012
Q5: Relative/household member came from abroad in the last 14 days	3	0.085	0.0075
Q6: Relative/household member hospitalized for respiratory disease in the last 14 days	35	1	0.08
Q7: Relative/household member diagnosed with COVID-19 in the last 14 days	467	13.2	1.17

COVID-19 – coronavirus disease 2019.

the symptoms of coughing (Q2) and shortness of breath, sore throat, headache, myalgia, loss of taste and smell, or diarrhea (Q3). Positive responses to the COVID-19 contact questions comprised fewer than 1%, apart from the question about relatives/household members diagnosed with COVID-19 in the last 14 days (Q7).

Diagnostic test evaluation for the triage chart

Of the 3529 patients referred to the pandemic outpatient clinic for further examination, 1055 PCR-positive patients were considered true positive cases; the remainder were considered false positive for the diagnostic performance of the triage chart. Among the 36,152 patients considered low-risk after triage questioning, 94 patients who were PCR-positive for COVID-19 were considered false negative cases; the remainder were considered true negative cases. The sensitivity of the triage chart was 91.82% (95% CI: [90.08%; 93.34%]); the specificity was 93.58% (95% CI: [93.33%; 93.82%]); the positive likelihood ratio was 14.30 (95% CI: [13.71; 14.91]); and the negative likelihood ratio was 0.09 (95% CI: [0.07; 0.11]). The ROC analysis determined an AUC of 0.927 (95% CI: [0.918; 0.936]). The Cohen's kappa between the PCR and the triage questions showed a moderate agreement (kappa value: 0.429, $p < 0.0001$).

Diagnostic test evaluation for individual triage questions

Seven questions included in the "Possible COVID-19 Case Questioning Guide for Outpatients" triage chart were individually compared with the COVID-19 PCR positivity. Only the answers to the first 3 questions, which pertain the patients' complaints, were significantly different between the PCR-negative and the PCR-positive patients. The distribution of answers to the other 4 questions about the contact and travel history was similar between the groups.

Sensitivity, specificity, and positive and negative likelihood ratios for the first 3 triage questions were calculated using a 2-step approach. To obtain the sensitivity, specificity, and positive and negative likelihood ratio data for the pandemic outpatient clinic cases, the data presented in Table 2 served as the basis for calculation. To obtain the sensitivity, specificity, and positive and negative likelihood ratio data for all outpatients, true positive and false positive case data were based on the data presented in Table 2. Among the 36,152 patients considered low-risk after triage questioning, 94 patients who were PCR-positive for COVID-19 were considered false negative cases; the remainder were considered true negative cases. Questions 4–7 were not included in the analysis due to a low number of positive responses and similar percentages of positive and negative responses in the PCR-positive and PCR-negative pandemic outpatient cases.

Overall, question 3, which included several symptoms (shortness of breath, sore throat, headache, myalgia, loss of taste and smell, or diarrhea), had the highest sensitivity and negative likelihood ratio. Question 1 (fever and a history of fever) had the highest specificity and positive likelihood ratio. In this instance, Cohen's kappa, which demonstrates inter-rater agreement, showed none to slight agreement between the PCR results and the triage

Table 2. Frequency and percentage distribution of responses to individual triage questions in relation to PCR results of patients referred to the pandemic outpatient clinic, as compared using χ^2 tests

Question	Answer	PCR result		χ^2 test	p-value
		negative (2474) n (%)	positive (1055) n (%)		
Q1: Fever or a history of fever	no	1860 (75.2)	673 (63.8)	47.368	<0.001
	yes	614 (24.8)	382 (36.2)		
Q2: Cough	no	1014 (41)	351 (33.3)	18.566	<0.001
	yes	1460 (59)	704 (66.7)		
Q3: Shortness of breath, sore throat, headache, myalgia, loss of taste and smell, or diarrhea	no	711 (28.7)	252 (23.9)	8.778	0.002
	yes	1763 (71.3)	803 (76.1)		
Q4: Abroad travel in the last 14 days	no	2471 (99.9)	1053 (99.8)	0.244	0.47
	yes	3 (0.1)	2 (0.2)		
Q5: Relative/household member came from abroad in the last 14 days	no	2473 (99.9)	1053 (99.8)	1.937	0.21
	yes	1 (0.1)	2 (0.2)		
Q6: Relative/household member hospitalized for respiratory disease in the last 14 days	no	2446 (98.9)	1048 (99.3)	1.652	0.13
	yes	28 (1.1)	7 (0.7)		
Q7: Relative/household member diagnosed with COVID-19 in the last 14 days	no	2155 (87.1)	907 (86)	0.829	0.19
	yes	319 (12.9)	148 (14)		

PCR – polymerase chain reaction; COVID-19 – coronavirus disease 2019.

Table 3. Diagnostic value of individual triage questions, presented as sensitivity and specificity percentages, and positive and negative likelihood ratios (with 95% confidence intervals (95% CIs) calculated using exact Clopper–Pearson method for sensitivity and specificity and log method for likelihood ratios), receiver operating characteristic (ROC) area under the curve (AUC) measurements; and inter-rater reliability, calculated using the Cohen's kappa statistic, of patients referred to the pandemic outpatient clinic and all outpatients

Question	Patients	Sensitivity [%] (95% CI)	Specificity [%] (95% CI)	Positive likelihood ratio (95% CI)	Negative likelihood ratio (95% CI)	ROC AUC (95% CI)	p-value for ROC AUC	Cohen's kappa (95% CI)	p-value for Cohen's kappa
Q1: Fever or a history of fever	pandemic outpatients	36.2 [33.3; 39.1]	75.1 [73.4; 76.8]	1.46 [1.31; 1.62]	0.85 [0.81; 0.89]	0.577 [0.536; 0.578]	<0.001	0.116 [0.082; 0.149]	<0.001
	all outpatients	33.2 [30.5; 36.0]	98.4 [98.2; 98.5]	20.86 [18.63; 23.37]	0.68 [0.65; 0.71]	0.658 [0.639; 0.677]	<0.001	0.338 [0.312; 0.363]	<0.001
Q2: Cough	pandemic outpatients	66.7 [63.8; 69.5]	40.9 [39.0; 42.9]	1.13 [1.07; 1.19]	0.81 [0.74; 0.90]	0.539 [0.518; 0.559]	<0.001	0.059 [0.031; 0.086]	<0.001
	all outpatients	61.2 [58.3; 64.1]	96.2 [96.0; 96.4]	16.17 [15.11; 17.31]	0.4 [0.37; 0.43]	0.787 [0.770; 0.805]	<0.001	0.402 [0.380; 0.423]	<0.001
Q3: Shortness of breath, sore throat, headache, myalgia, loss of taste and smell, or diarrhea	pandemic outpatients	76.1 [73.4; 78.6]	28.7 [26.9; 30.5]	1.07 [1.02; 1.11]	0.83 [0.73; 0.94]	0.524 [0.504; 0.545]	0.022	0.034 [0.012; 0.055]	0.003
	all outpatients	69.8 [67.1; 72.5]	95.4 [95.2; 95.6]	15.27 [14.39; 16.21]	0.32 [0.29; 0.34]	0.827 [0.811; 0.843]	<0.001	0.409 [0.389; 0.428]	<0.001

questions for the pandemic outpatients. Questions 2 and 3 showed moderate agreement, whereas question 1 showed fair agreement between the PCR results and the triage questions for all outpatients (Table 3).

Discussion

Effective triage is essential for preventing the transmission and ensuring rapid isolation of probable or definite cases in fighting the COVID-19 pandemic. The triage involves not only a ranking based on importance, but also an appropriate allocation of limited medical resources and isolation of highly contagious cases to limit the spread of the disease to other patients and healthcare workers.[12] Moreover, it was previously hypothesized that using a telephonic triage and asking the patients to delay hospital admissions for 14 days if they have symptoms such as fever, cough or shortness of breath, travel or contact history, could reduce in-hospital COVID-19 positivity.[13] Although the Turkish medical system does not discourage admitting patients to the hospital during the pandemic, the "Possible COVID-19 Case Questioning Guide for Outpatients" triage chart is utilized as a tool to triage possible COVID-19 cases to the relevant areas within the hospital. Herein, we aimed to report the real-world data for the diagnostic value of the triage chart and the individual questions in the triage chart for detecting COVID-19 PCR positivity in patients admitted to our hospital.

In a triage setting outside the hospital, patients can be directed to the pandemic outpatient clinic using the questions about symptoms and contact history. The literature suggests that patients are considered low-risk in the absence of COVID-19-related symptoms.[5] Our results show that positive responses to the questions regarding possible COVID-19 symptoms are much more frequent than positive responses to questions concerning contact history. In the context of selecting possible COVID-19 cases from all outpatients, the triage chart showed high sensitivity and specificity, with an AUC of 0.927 and moderate agreement with PCR positivity. However, the contact history questions are rarely positively responded by patients; therefore, these results are mainly based on patients' symptoms. Moreover, these results reflect real-world data; since no routine PCR screening was conducted in all outpatients, the absolute diagnostic values would be expected to be lower than the current results. In contrast, the individual questions of the triage chart showed unsatisfying AUCs, and none to slight agreement with PCR results within pandemic outpatients. Although the triage chart is used to select possible cases that should be referred to pandemic area, this result limits the practical application of the triage chart.

Patients infected with COVID-19 may present with a broad spectrum of mild to severe symptoms. Flu-like symptoms, fever, headache, dry cough, myalgia, loss of taste and smell, sore throat, fatigue, and diarrhea are the most frequently noted mild symptoms. More severe manifestations, such as dyspnea, bilateral viral pneumonia, acute respiratory distress syndrome, and respiratory failure, may also be observed. In various studies, the most common symptoms of COVID-19 were fever (83–98% of patients) and cough (66–82%).[14–19] However, using fever as a marker for PCR positivity yielded unsatisfactory results. A literature review reported that while 85% of patients with COVID-19 had fever during the infection, only 45% had fever in the early period. Using fever as a marker of PCR positivity among oncological and transplant patients had a sensitivity of 15.09%, and a cutoff point of 37.3°C for fever had low validity for PCR positivity. Of the 5231 individuals screened, 49 tested positive for fever, of which only 5 were PCR-positive. In comparison, 48 patients were PCR-positive

without a fever. The sensitivity of fever for PCR positivity was 9.43% (95% CI: [3.13%; 20.66%]), whereas the specificity was 99.15% (95% CI: [98.86%; 99.38%]).[20] Similarly, our results demonstrate that fever or a history of fever was positive in 36.2% of PCR-positive pandemic outpatient cases, whereas it was also positive in 24.8% of PCR-negative pandemic outpatient cases. Therefore, fever or a history of fever has low diagnostic value for choosing patients for the pandemic area or PCR positivity. Cough also yielded unsatisfactory results, with a higher sensitivity and lower specificity than fever.

Other symptoms related to COVID-19, namely shortness of breath, sore throat, headache, myalgia, loss of taste and smell, or diarrhea were considered as a whole in the "Possible COVID-19 Case Questioning Guide for Outpatients" triage chart. Several studies reported that between 5% and 85% of infected patients lose their sense of smell.[21] Other symptoms, such as shortness of breath, are seen in 18–55% of infected patients, and myalgia and fatigue in 11–44%. Confusion, sore throat, nasal discharge or congestion, chest pain, diarrhea, nausea and vomiting, hemoptysis, and headache are observed in less than 10% of infected patients.[14,16,19] Since the question included in the triage chart is an umbrella question and covers symptoms as a whole, we could not perform an analysis of individual symptoms. However, these symptoms had the highest positivity rate among the triage chart questions.

There is a paucity of data in the literature regarding triage charts as a tool to single out possible COVID-19 cases and the association of triage charts with PCR positivity. A Saudi Arabian study that evaluated the prediction of a positive PCR test using a triage chart reported that the sensitivity, specificity, positive predictive value, and negative predictive value were 64%, 55.7%, 31.1%, and 83.2%, respectively.[22] A ROC curve analysis reported AUC value of 0.60 (95% CI: [0.57; 0.64]). Male sex, being a healthcare worker or their family member, and fever were predictive of PCR positivity.[22] Another similar triage study was conducted by Mansella et al., who reported that COVID-19 PCR positivity was significantly associated with symptoms such as fever, cough, myalgia, and headache; however, symptoms such as dyspnea, wheezing and sore throat have been reported as having a significant association with PCR negativity.[23] A risk tool developed by Lundon et al., which includes body mass index (BMI), age, gender, and temperature, had an AUC of 0.77 for COVID-19 positivity.[24] A Qatar-based study presented a scoring system based on a logistic regression model using predictors identified by random forest, which includes emergency department indicators (demographic data, chief complaint and vital signs) for COVID-19 positivity; the model had a 5.9 positive likelihood ratio and a 19.3 negative likelihood ratio at different cutoff points.[25] In contrast to these studies, a similar scoring system from southern Tunisia, which included contact history, fever, cough and/or dyspnea, sore throat, nausea/vomiting/diarrhea, renal/respiratory, or cardiac failure, had insufficient AUC to discriminate COVID-19 cases.[26] Our results demonstrate that the "Possible COVID-19 Case Questioning Guide for Outpatients" triage chart had high sensitivity and specificity value as a whole, with a considerable AUC for discriminating possible COVID-19 cases, similar to the currently published literature. However, it had an unsatisfactory diagnostic value for predicting PCR positivity in patients referred to the pandemic outpatient area, underlying a poor correlation with PCR positivity within possible cases. Although fever was reported to have low sensitivity and specificity,[20] several triage chart studies and our study included fever as an item for triage.[22–24] The differences regarding the diagnostic performance of triage charts can be explained by the way the triage charts are implemented, as the "Possible COVID-19 Case Questioning Guide for Outpatients" considers any question answered positively as a possible case, whereas others require multiple items and a cutoff for positivity.[22,24] Moreover, triage charts also differ regarding the way of inclusion of symptoms and contact history. Also, positive symptomatology and cultural differences in defining contact history may influence the results.

Limitations

There are certain limitations to our study. First, due to the retrospective nature of our study, only the triage charts and patient COVID-19 PCR outcomes were available without data loss. Second, we were unable to break down and individually analyze symptoms in question 3 within the "Possible COVID-19 Case Questioning Guide for Outpatients" triage chart, which is an umbrella question including shortness of breath, sore throat, headache, myalgia, loss of taste and smell, or diarrhea. Moreover, not all patients considered low-risk during triage were screened with PCR for COVID-19. Among 36,152 patients who were considered low-risk after triage questioning, 94 patients were PCR-positive for COVID-19. However, these patients underwent PCR screening for preoperative evaluation, if they developed a new symptom or for contact screening. Therefore, the results should be evaluated accordingly.

Conclusion

Effective triage is the first step in preventing in-hospital transmission of COVID-19. The "Possible COVID-19 Case Questioning Guide for Outpatients" triage chart created by the Turkish Ministry of Health presents high sensitivity and specificity for discriminating possible COVID-19 cases to refer them to pandemic area, but has unsatisfactory diagnostic value for predicting PCR positivity in pandemic outpatients. The diagnostic value of the triage chart is mainly attributed to questions regarding possible COVID-19 infection symptoms rather than these concerning contact history. Therefore, the current triage

chart should be used accordingly, i.e., to define possible COVID-19 cases rather than PCR-positive cases. Further studies regarding COVID-19 triage for possible and PCR-positive cases should focus also on the individual diagnostic value of less prevalent symptoms.

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