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Diagnostic Value of Chest CT in Coronavirus Disease 2019 (COVID-19)

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Abstract

Background: To break trains of community transmission, an early and rapid detection method of COVID-19 infection was crucial to start tracing and provide treatment. RT-PCR is considered the gold standard tool for confirming COVID-19 infection yet has its limitations as time-consuming and limited resources.

Aim of Study: The target of this study is to assess the sensitivity and specificity of CT Chest compared to initial PCR results in the diagnosis of COVID-19 pneumonia among study population in Ain Shams Hospital within the frame time duration of the study.

Patients and Methods: Data collected between first of June till 20th of June 2020 and enrolled 117 patients (64 males and 53 females) who presented with suspicious COVID-19 symptoms and underwent both PCR swab test and Chest CT scan. The cases were categorized according to both RSNA and Deutch radiological society adopted reporting systems for CT Chest findings.

Results: The most prominent radiological findings were ground glass opacities (82.9%) and consolidation (34.2%) with suspected cases by CT scan about (84.6%) while only (61.5%) were positive on initial PCR. As regard evaluation of CT diagnostic performance, Sensitivity was (97.2%) and positive predictive value was (70.7%) with accuracy (73.5%).

Conclusion: Chest CT scan has a very high sensitivity with acceptable positive predictive value enough to be a reliable method for early detection of COVID-19 infection.

Key Words: *COVID – CT – PCR – RSNA – CORADS.*

Introduction

STARTING on March 2020, the World Health Organization officially announced that the new corona virus disease (COVID-19) has become a global pandemic **[1]**. At this point, the severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) was responsible for more than 2,000,000 infections and 100,000 deaths worldwide, with a rapidly increasing number especially in the United States and Europe. The outbreak continues to widespread; with cases doubling every 3-4 days that threatens medical systems to become overburdened **[2]**.

Viral nucleic acid test by reverse transcription-polymerase chain reaction (RT-PCR) is the first line screening method of choice **[3]**. However, the sensitivity of RT-PCR is insufficient, ranging from 50 to 62% according to previous large-scale reports **[3,4]**.

Some patients may be highly suspicious, based on established close contact with confirmed cases, typical clinical manifestations and CT image appearance, but may still develop a false negative initial RT-PCR, which increases the risk of community transmission and delay in treatment, yet RT-PCR remains the gold standard tool for confirming COVID-19 infection, incorporating multiple RT-PCR tests to make up for its shortcomings **[2]**.

As demonstrated in the large-scale outbreaks in severe acute respiratory syndrome (SARS-CoV) **[5]** and Middle East respiratory syndrome (MERS-CoV) **[6]**, CT is known to be an important imaging modality in the diagnosis and assessment of patients with viral pneumonia.

Recent studies proved that CT of COVID had typical appearance of viral lung infection, with a

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List of Abbreviations:

RT-PCR	: Reverse transcriptase-polymerase chain reaction.
CT	: Computed tomography.
RSNA	: Radiological society of north of America.
CO-RADS	: COVID-19 Reporting and Data System.
WHO	: World health organization.
PACS	: Picture archiving and communication systems.

sensitivity of 60-98% [7,8]. Surprisingly, CT changes may be identified before patients become symptomatic and RT-PCR is positive [9,10,11].

In China, Hubei, to ensure timely treatment and isolation measures, there was a temporary period where diagnoses of COVID-19 were based on CT changes even without positive PT-PCR result. In the other hand, no CT abnormality was found in part of the confirmed cases when pneumonia was absent. Other kinds of viral pneumonia can also mimic COVID-19 pneumonia, which makes it difficult to differentiate [2].

Thus, the diagnostic performance of CT in COVID-19 is less clarified. We aimed to compare the diagnostic performance of chest CT and initial real-time RT-PCR for COVID-19, with RT-PCR test results as reference standard.

Patients and Methods

This is a retrospective study conducted on 117 patients with ages ranged from 19 to 85 at CT unit of the diagnostic radiology department at El-Demerdash Teaching Hospital 2019.

Inclusion criteria: Patients included in the study should have the following criteria:

Clinical manifestations suspecting viral pneumonia, underwent Chest CT & underwent RT-PCR test.

Exclusion criteria:

Incomplete clinical or laboratory information
- Images with excessive motion artefacts.

Ethical considerations:

The study was conducted according to the stipulations of the ASU (Ain Shams University) Ethical and Scientific Committee.

Study procedures:

- Clinical information including travel and exposure history and clinical symptoms (analysis was done for 3 major symptoms: cough, fever and dyspnea).
- RT-PCR results for participants who were subjected to nasopharyngeal swab or oropharyngeal swab for respiratory secretion specimens performed using real-time RT-PCR kits.
- Non-contrast CT Chest images were extracted from PACS system in Radiology Department-Ain Shams University Hospitals, which were acquired at full inspiration with the patient in the supine position following acquisition parameters of usual protocol (120 kVp; 100-200 mAs; pitch, 0.75-1.5; matrix = 512 x 512, slice thickness = 10mm), All images were then reconstructed with a slice thickness of 1.25mm with the same increment and reformatted with soft tissue and lung windows. All images were transferred to a stand-alone workstation for analysis.
- Data were cross-matched according to inclusion criteria (A case suspected for COVID-19 virus infection who had chest manifestations and underwent both CT Chest study and PCR swab during his illness).
- Serial PCR was done after 72hrs for cases with negative initial PCR result but suspected clinically.

All extracted CT Chest images were reviewed by single radiologist and analyzed to be recorded into Results Sheet.

The analysis included presence / absence of: Ground glass opacities / Consolidation patches / Crazy paving patterns / Vascular enlargement / Air bronchogram / Air trapping / Reversed Halo sign / Discrete pulmonary nodules / Pleural effusion / Mediastinal lymphadenopathy / Bronchiectasis / Other non-mentioned features.

After data analysis, Cases were categorized according to both RSNA adopted reporting system for CT chest related to COVID-19 with four classes and the Deutch radiological society adopted reporting system so called CO-RADS with six classes as mentioned in tables 1 and 2 [12,13].

According to previous studies as in Kwee et al., the cut-off for a positive CT for suspicion of COVID-19 was considered at CORADS 3 or above and at indeterminate/typical categories of RSNA classification [14].

Using RT-PCR results as reference standard, the sensitivity, specificity, and accuracy of chest CT in diagnosing COVID-19 were assessed.

Statistical analysis:

Recorded data were analyzed using the statistical package for social sciences, version 20.0 (SPSS Inc., Chicago, Illinois, USA). Quantitative data were expressed as mean ± standard deviation (SD). Qualitative data were expressed as frequency and percentage. Comparison between groups for qualitative variables was performed using Chi square. The confidence interval was set to 95% and the margin of error accepted was set to 5%. So, the p-value was considered significant if p-value ≤ 0.05.

Results

Demographic data, exposure history and symptoms of the study population:

Table (1): Demographic data, exposure history and symptoms of the study population.

Demographic data	No.	%
Sex:		
Female	53	45.3
Male	64	54.7
Age group:		
<20 years	1	0.9
20-39 years	23	19.7
40-59 years	63	53.8
›_60 years	30	25.6
Exposure:		
Known	23	19.7
Unknown	94	80.3
Symptoms:		
Fever	112	95.7
Cough	81	69.2
Dyspnea	43	36.8

Lung affection in CT among the study population:

Table (2): Lung affection distribution.

Lung affection laterality	No.	%
Bilateral	96	82.1
Unilateral	15	12.8
No	6	5.1
Number of lobes affected:		
0	6	5.1
1	13	11.1
2	13	11.1
3	12	10.3
4	15	12.8
5	58	49.6

Different CT findings among the study population:

Table (3): Distribution of GGO and consolidation.

CT finding	No.	%
GGO:	97	82.9
Consistent with COVID-19	5	4.3
Not Consistent with COVID-19	15	12.8
No		
Consolidation:		
Consistent with COVID-19	40	34.2
Not Consistent with COVID-19	5	4.3
No	72	61.5

RSNA and CORADS classifications role in suspicion of COVID-19 infection:

Table (4): RSNA and CORADS classifications.

RSNA classification	No.	%
Negative	6	5.1
Atypical	12	10.3
Indeterminate	21	17.9
Typical	78	66.7
CORADS:		
1	6	5.1
2	12	10.3
3	13	11.1
4	8	6.8
5	76	65.0
6	2	1.7

So, considering our cut-off limit for positive CT at CORADS 3 or above and at indeterminate or typical categories of RSNA classification, there were 99 patients (84.6%) considered positive and 18 patients (15.4%) considered negative according to CT findings while there were 72 patients (61.5%) were positive and 45 patients (38.5%) were negative according to initial PCR (Table 5).

Table (6) shows that there were 72 patients positive of PCR, 97.2% out of them true positive of CT and 2.8% false negative of CT, while there were 45 patients Negative of PCR and 35.6% out of them true negative of CT and 64.4% false positive of CT, there was highly statistically significant agreement between the two diagnoses, by comparison of initial PCR and CT a yielded weighted Kappa value of 0.407 indicating moderate agreement and p-value <0.001.

As regard evaluation of CT diagnostic performance, it was Sensitivity (97.2%), Specificity (35.6%), Positive Predictive value (70.7%), Negative Predictive value (88.9%) and Accuracy (73.5%) (Table 7).

On serial PCR, there were 22 patients (48.9%) turned positive which were all considered positive on initial CT (Table 8).

Table (5): Diagnostic value of both CT and initial PCR.

	No.	%
Diagnostic value of CT:		
Positive	99	84.6
Negative	18	15.4
Initial PCR:		
Positive	72	61.5
Negative	45	38.5

Table (6): Relation between Chest CT and initial PCR results.

Chest CT	Initial PCR				Chi-square test	
	Positive		Negative			
	No.	%	No.	%	x^2	*p*-value
Positive	70	97.2	29	64.4	20.406	<0.001**
Negative	2	2.8	16	35.6		

Table (7): Statical analysis of the relations in Table (6).

Sensitivity	97.2%
Specificity	35.6%
Positive Predictive value	70.7%
Negative Predictive value	88.9%
Accuracy	73.5%

Table (8): Comparison between Chest CT and serial PCR results.

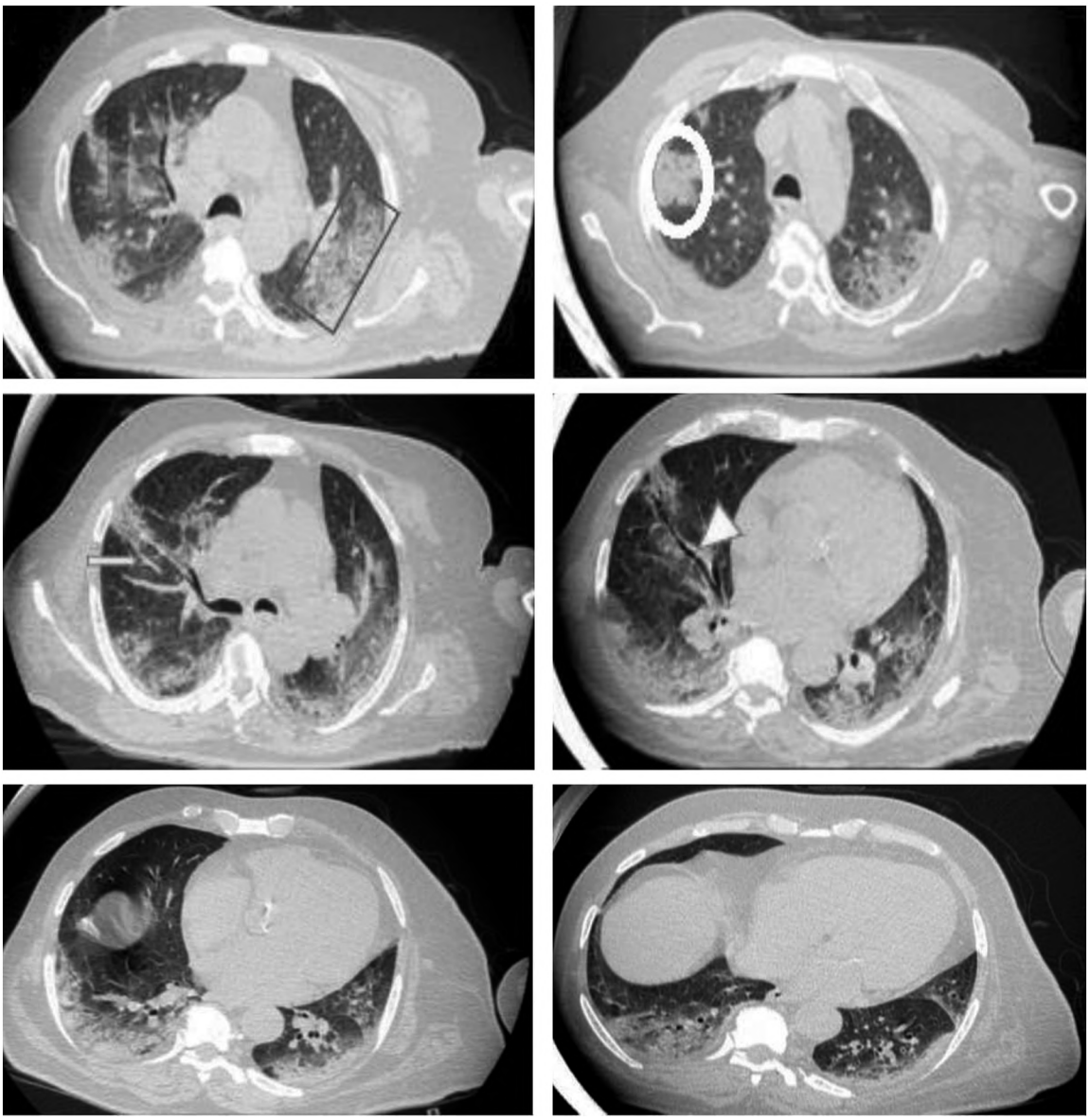
Initial CT	Serial PCR			
	Positive		Negative	
	No.	%	No.	%
Positive	22	48.90	7	15.60
Negative	0	0.00	16	35.50

Table (9): RSNA proposed reporting language for CT findings related to COVID-19 **[12]**.

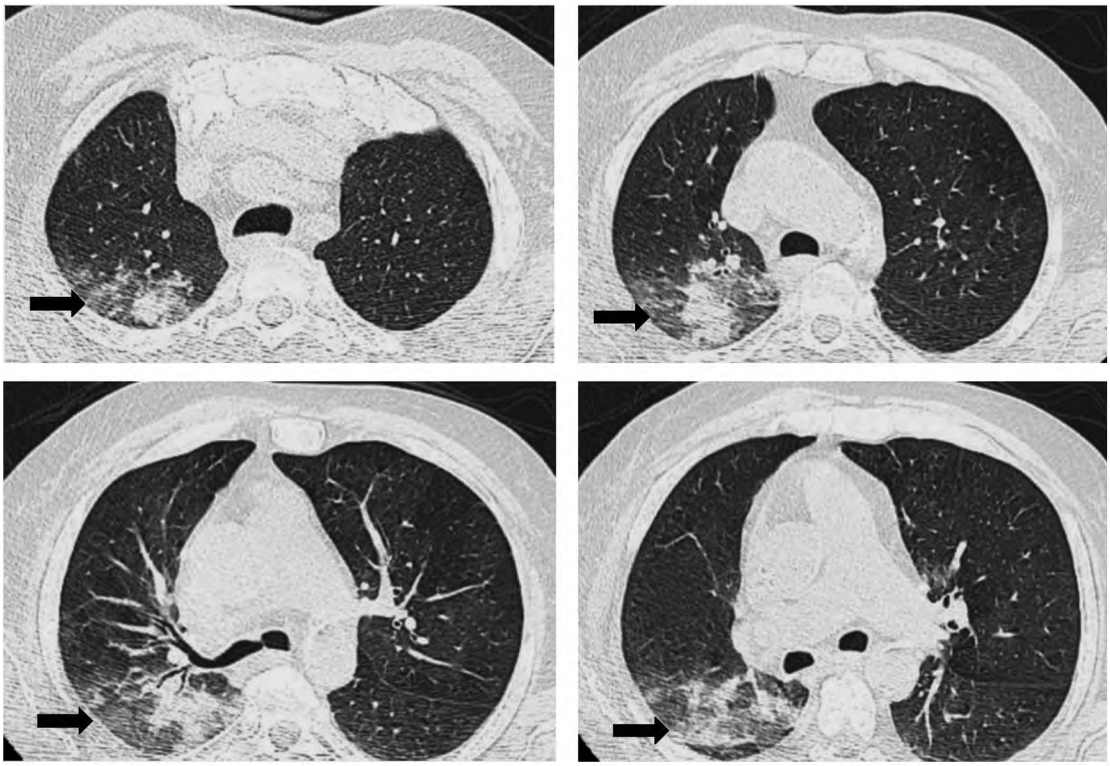
COVID-19 pneumonia imaging classification	Rationale (6-11)	CT findings	Suggested reporting language
Typical appearance	Commonly reported imaging features of greater specificity for COVID-19 pneumonia.	Peripheral, bilateral, GCO with or without consolidation or visible intralobular lines (crazy-paving). Multifocal GGO of rounded morphology with or without consolidation or visible intralobular lines (crazy-paving). Reverse halo sign or other findings of organizing pneumonia (seen later in the disease).	Commonly reported imaging features of (COVID-19) pneumonia are present. Other processes such as influenza pneumonia and organizing pneumonia, as can be seen with drug toxicity and connective tissue disease, can cause a similar imaging patern (Cov19Typ)*
Indeterminate appearance	Nonspecific imaging features of COVID-19 pneumonia.	Absence of typical features and presence of: Multifocal, diffuse, perihilar, or unilateral GGO with or without consolidation lacking a specific distribution and are nonrounded or nonperipheral. Few very small GGO with a nonrounded and nonperipheral distribution.	Imaging features can be seen with (COVID-19) pneumonia, though are non-specific and can occur with a variety of infectious and noninfectious processes (Cov19nd)*
Atypical appearance	Uncommonly or not reported features of COVID-19 pneumonia.	Absence of typical or indeterminate features and presence of: Isolated lobar or segmental consolidation without GGO. Discrete small nodules (centriloblar, tree-inbud). Lung cavitation. Smooth interlobular septal thickening with pleural effusion.	Imaging features are atypical or uncommonly reported for (COVID-19) pneumonia. Alternative diagnoses should be considered (Cov19-Aty)*
Negative for pneumonia	No features of pneumonia.	No CT features to suggest pneumonia.	No CT findings present to indicate pneumonia. (Note: CT may be negative in the early stages of COVID-19) (Cov-19Neg)*

Table (10): Overview of CO-RADS categories and the corresponding level of suspicion for pulmonary involvement in COVID-19 **[13]**.

CO-RADS category	Level of suspicion for pulmonary involvement of COVID-19	Summary
0	Not interpretable	Scan technically insufficient for assigninf a score
1	Very low	Normal or noninfectious
2	Low	Typical for other infection but not COVID-19
3	Equivocal/unsure	Features compatible with COVID-19 but also other diseases
4	High	Suspicious for COVID-19
5	Very high	Typical for COVID-19
6	Proven	RT-PCR positive for SARS-CoV-2



Case (1): Showing Chest CT of a 67 years old male patient-unknown exposure, complaining of fever, cough and dyspnea, his initial PCR tested positive-illustrating bilateral peripheral multi-focal patchy areas of ground glassing (rectangle) and consolidation (circle) associated with vascular enlargement (arrow) and bronchial thickening (arrowhead) (CORADS 5) (Typical presentation).



Case (2): Showing Chest CT of a 65 years old male patient-unknown exposure, complaining of fever and dyspnea, his initial PCR tested negative then turned positive on serial PCR-illustrating right upper lobar unifocal patchy area of ground glassing and consolidation (arrows) (CORADS 3) (Indeterminate presentation).

Discussion

Currently, there is a widespread debate around the role of the plain CT Chest in early diagnosing the infection by COVID-19 virus requiring extensive studying, the Chinese studies stressed on the great value of CT usage during the current epidemic while outside China it wasn't very appreciated due to lack of specificity. To refine the CT as a diagnostic tool during the epidemic, many radiological societies developed a consensus regarding suspicion of COVID-19 infection. We assessed the data collected according to the last update of the RSNA classification released by the American Radiological society and the CORADS classification released by the Deutch Radiological society.

The study was conducted on 117 cases with a wide age group ranging from 19 to 85 years, mean age of 50.42±14.45 years (Table 1) which comes in line with Ai et al., **[15]** reporting study group mean age 51±15 years.

According to our study, Fever should be considered the most common symptom among clinical presentation of COVID19 patients with incidence of 95.7% (Table 1) same as Song et al., **[16]** reported with incidence of 96%.

The lung lobar affection in our study is mainly bilateral in 96 out of 117 cases representing 82.1% (Table 2) which comes in line with what Song et al., **[16]** found as 44 out of 51 cases (86%) of his study group presented with bilateral involvement while we find unilateral lung affection incidence falls to 12.8% with only 15 out of 117 cases same as Song et al., **[16]** reported incidence of unilateral lung affection of 14% (7 out of 51 cases). In our study, there are 73 of 117 patients (62.4%) presented with lesions involving 4 to 5 lobes (Table 2) which comes in line with what Song et al., **[16]** stated as 32 of 51 patients (63%).

In the first radiologic study of 21 patients by Chung et al., **[17]**, GGO was reported in 57% of patients and was thought to be the earliest radiographically evident CT manifestation in some patients. These findings are consistent with those of other successive studies, presenting GGO as the most common imaging finding with incidence rate of up to 76% as Song et al., **[16]** stated which comes in line with our study with GGO consistent with COVID-19 criteria noted in 82.9% of our study population (97/117) (Table 3). Multifocal, patchy, or segmental consolidation, scattered in subpleural areas or along broncho-vascular bundles, is usually presented in COVID-19 patients with occurrence

rate of 2~64% [8,18,19] while in our study it was 34.2% (40/117) (Table 3).

In our study, we found out that 78 patients (out of 117) presented with typical presentation according to RSNA classification representing 66.7% (Table 4) which considered less than what Ciccarese et al., [20] reported; 151 out of 172 cases were considered with a typical presentation representing 87.8%. According to Falaschi et al., [21], merging typical and indeterminate categories helped rising the frequency up to 86.3% (419/485) which comes in line with our results if we merged both categories to become 84.6% (99/117) (Table 4).

With atypical presentation frequency only 10.3% (12/117) (Table 4), there is an agreement between our study and Falaschi et al., [21] reporting 14.9% (43/288) and about as same as what Ciccarese et al., [20] reported as 10.4% (7/67). Dofferhoff et al., [22] mentioned that frequency of COVID-19 in CORADS 5 category was 82.1% (119/145) which comes much higher than what we find as 65% of our study group (76/117) were located in the CORADS 5 category (Table 10). The frequency in the CORADS 2 category which reported to be 14.3% in Dofferhoff et al., [22] comes close to what we find in our study to be just 10.3% (Table 4). In our study, CT is considered as positive for COVID-19 infection in 99 out of 117 cases (84.6%) (Table 5) while initial PCR confirmed the infection in 72 out of 117 with incidence of 61.5% in our study group (Table 5) consistent with what Ai et al., [15] reported.

With initial PCR results considered the reference in our study, the sensitivity of CT Chest in indicating COVID-19 infection was 97.2% (70/72) while the specificity was 35.6% (16/45) and the accuracy was 73.5% (Table 7) which come in line with what Ai et al., [15] stated with 97%, 25% and 68% respectively.

Our study showed that initial CT was considered positive for 48.9% of the cases (22/45) who have negative initial PCR turned positive on their follow up PCR (Table 8) and this was consistent with Ai et al., [15] reporting that about 60% of cases had typical CT features consistent with COVID-19 infection prior to positive PCR result. This for sure indicates that CT imaging can be very useful in early detection of suspected cases.

Conclusion:

Plain CT Chest represents a great solution for the current dilemma in the shadow of PCR kits rarity worldwide and the time spent to get its results. CT Chest has a very high sensitivity with acceptable positive predictive value enough to be a reliable method for early detection of COVID-19 infection to allow early isolation and quarantine. RSNA classification and CORADS classification are reliable and useful tools of reporting CT studies regarding suspicion of COVID-19 infection with CORADS classification showing better suspicion results.

References

1- WHO 2020: Coronavirus disease (COVID-19) situation report-42. World Health Organization, Geneva, 2019 .

2- HE J., LUO L., LUO Z., et al.: Diagnostic performance between CT and initial real-time RT-PCR for clinically suspected 2019 coronavirus disease (COVID-19) patients outside Wuhan, China, Respiratory Medicine, 168: 105980, 2020.

3- WANG W., XU Y., GAO R., et al.: Detection of SARS-CoV-2 in different types of clinical specimens, J. Am. Med. Assoc., 323 (18): 1843-1844, 2020.

4- GUAN W.J., NI Z.Y., HU Y., et al.: Clinical characteristics of coronavirus disease 2019 in China. N. Engl. J. Med., 382: 1708-1720, 2020.

5- OOI G.C., KHONG P.L., MULLER N.L., et al.: Severe acute respiratory syndrome: Temporal lung changes at thin-section CT in 30 patients, Radiology, 230 (3): 836-844, 2004.

6- AJLAN A.M., AHYAD R.A., JAMJOOM L.G., et al.: Middle East respiratory syndrome coronavirus (MERSCoV) infection: Chest CT findings. AJR Am. J. Roentgenol., 203: 782-787, 2014.

7- NG M., LEE E.Y., YANG J., et al.: Imaging profile of the COVID-19 infection: Radiologic findings and literature review, Radiol Cardiothoracic Imaging 2: 1, 2020.

8- BERNHEIM A., MEI X., HUANG M., et al.: Chest CT findings in corona virus disease- 1 9(COVID- 19): Relationship to duration of infection, Radiology, 295: 3, 2020.

9- XIE X., ZHONG Z., ZHAO W., et al.: Chest CT for typical 2019-nCoV pneumonia: Relationship to negative RT-PCR testing, Radiology, 296: 2, E41-E45, 2020.

10- HUANG P., LIU T., HUANG L., et al.: Use of chest CT in combination with negative RT-PCR assay for the 2019 novel coronavirus but high clinical suspicion. Radiology, 295 (1): 22-23, 2020.

11- SHI H., HAN X., JIANG N., et al.: Radiological findings from 81 patients with COVID-19 pneumonia in Wuhan, China: A descriptive study. Lancet Infect Dis., 20 (4): 425-434, 2020.

12- SIMPSON S., KAY F.U., ABBARA S., et al.: Radiological Society of North America Expert Consensus Statement on Reporting Chest CT Findings Related to COVID-19. Radiology: Cardiothoracic Imaging, 2: 2, 2020.

13- MATHIAS P., WOUTER VE., TJALCO VR.V., et al.: CO-RADS: A Categorical CT Assessment Scheme for Patients Suspected of Having COVID-19-Definition and Evaluation. Radiology, 296: E97-E104, 2020.

14- KWEE R.M., ADAMS H.J.A. and KWEE T.C.: Diagnostic Performance of CO-RADS and the RSNA Classification System in Evaluating COVID-19 at Chest CT: A Meta-Analysis. Radiology: Cardiothoracic Imaging, 3: 1, 2021.

15- AI T., YANG Z., HOU H., et al.: Correlation of chest CT and RTPCR testing in coronavirus disease 2019 (COVID-19) in China: A report of 1014 cases. Radiology, 296: 2, E32-E40, 2020.

16- SONG F., SHI N., SHAN F., et al.: Emerging coronavirus 2019-nCoV pneumonia. Radiology, 295 (1): 210-217, 2020.

17- CHUNG M., BERNHEIM A., MEI X., et al.: CT imaging features of 2019 novel coronavirus (2019-nCoV). Radiology, 295 (1): 202-207, 2020.

18- WU J., WU X., ZENG W., et al.: Chest CT findings in patients with corona virus disease 2019 and its relationship with clinical features. Invest. Radiol., 55 (5): 257-261, 2020.

19- KUNHUA LI J.W., WU F., GUO D., et al.: The clinical and chest CT features associated with severe and critical COVID-19 pneumonia. Invest Radiol., 55 (6): 327-331, 2020.

20- CICCARESE F., COPPOLA F., SPINELLI D., et al.: Diagnostic Accuracy of North America Expert Consensus Statement on Reporting CT Findings in Patients with Suspected COVID-19 Infection: An Italian Single Center Experience. Radiol Cardiothoracic Imaging, 2 (4): e200312, 2020.

21- FALASCHI Z., DANNA P.S.C., ARIOLI R., et al.: Chest CT accuracy in diagnosing COVID-19 during the peak of the Italian epidemic: A retrospective correlation with RT-PCR testing and analysis of discordant cases. Eur. J. Radiol., 130: 109192, 2020.

22- DOFFERHOFF A.S.M., SWINKELS A., SPRONG T., et al.: Diagnostic algorithm for COVID-19 at the ER [in Dutch]. Ned Tijdschr Geneeskd, 164: D502, 2020.

القيمة التشخيصية للأشعة المقطعية على الصدر فى تشخيص الاصابة بمرض كورونا المستجد (كوفيد -١٩)

فى ظل الانتشار السريع لمرض كورونا المستجد وتدهور أنظمة الرعاية الصحية كان لزاما إيجاد وسيلة سريعة واعتمادية لاكتشاف الإصابة، هدفنا هو إثبات فعالية الاشعة المقطعية على الصدر فى التشخيص المبكر للإصابة بفيروس كورونا المستجد (كوفيد-١٩).

\النتائج: تمت هذه الدراسة بمراجعة بيانات ١١٧ مريض ممن حضروا لقسم الطوارئ بمستشفيات جامعة عين شمس و وفقاً لحالتهم الصحية تم اعتبارهم (اشتباه إصابة بفيروس كورونا المستجد) وخضعوا لعمل فحص الأشعة المقطعية ومسحة أنفية لإجراء فحص تفاعل البلمرة المتسلسل.

تبين من خلال الدراسة أن أغلب المرضى المصابين بفيروس كورونا المستجد قد عانو من تكثفات رئوية أو عتامات الزجاج المصنفرة خاصة فى الأجزاء تحت البلورية فى كلتا الرئتين.

تم تحديد إيجابية فحص المقطعية من عدمه وفق كلا من المرجع الأمريكى والألمانى فى تقييم الإصابة.

بلغت حساسية الأشعة المقطعية على الصدر فى تشخيص الإصابة بفيروس كورونا المستجد إلى ٩٧.٢٪ مقارنة بنتائج فحص تفاعل البلمرة المتسلسل كمرجع.

بمتابعة الحالات سلبية المسحة وبإ عادة إجراء الفحص لها لتأ كيد التشخيص لوحظ ظهور الإصابة فى حوالى نص عدد الحالات التى سبق أن اعتبرت سلبية حسب فحص تفاعل البلمرة المتسلسل ولكن لديها أعراض إكلينيكية واشتباه وفق معايير تقييم الأشعة المقطعية مما يدل على حساسية الأشعة المقطعية العالية وإن كانت على حساب تخصصية الفحص الذى بلغ ٣٥.٦٪ فقط.

\الخلاصة: تتميز الأشعة المقطعية على الصدر بقدرة عالية على الإ كتشاف المبكر للإصابة بفيروس كورونا المستجد تكاد تتخطى فحص تفاعل البلمرة المستجد الذى اعتبر كمرجع أكيد للإصابة وإن كان ذلك على حساب تخصصية الفحص بما يخدم الوضع الوبائى ويساعد على سرعة إكتشاف المرض لدى المصابين.