



CODEN [USA]: IAJPBB

ISSN: 2349-7750

INDO AMERICAN JOURNAL OF  
**PHARMACEUTICAL SCIENCES**

SJIF Impact Factor: 7.187

<http://doi.org/10.5281/zenodo.3992057>

Available online at: <http://www.iajps.com>

Research Article

**SEROLOGICAL IMMUNOCHROMATOGRAPHIC METHOD  
IN THERAPY WITH SARS-COV-2 POSITIVE  
CORONAVIRUS PATIENTS**

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Article Received: June 2020

Accepted: July 2020

Published: August 2020

**Abstract:**

*An episode of novel coronavirus Covid-19 was happened in south and centre, Pakistan and quickly blowout to different urban areas and countries. The standard indicative methodology that broadly embraced in center is nucleic corrosive recognition by constant RT-PCR. Notwithstanding, bogus negative pace of strategy is unneglectable also serological techniques are desperately justified. Now, authors introduced the colloidal gold-grounded immunochromatographic strip focusing on viral IgM or IgG neutralizer and contrasted it and continuous RT-PCR. The affectability of ICG examine through IgM and IgG combinatorial identification in nucleic corrosive affirmed respondents were 13.2%, 94.6% and 97.9% at the beginning phase (1–7 days after beginning), transitional stage (9–16 days after on-set), and late stage (over 17 days), individually. The ICG location limit in nucleic corrosive negative speculated cases was 45.7%. Our current research was conducted at Jinnah Hospital, Lahore from March 8, 2020 to May 19, 2020. Likewise, concordance of entire blood tests and plasma indicated Cohen's kappa estimation of 0.95, which spoke to the practically ideal understanding amongst 4 kinds of tests. All in all, serological ICG strip measure in recognizing SARS-CoV-2 disease is mutually delicate and reliable, which is measured as a magnificent strengthening method in medical application.*

**Keywords:** Serological Immunochromatographic, SARS-COV-2, Corona Virus Positive.

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Please cite this article in press Muhammad Hassan Naeem Goraya et al, *Serological Immunochromatographic Method In Therapy With Sars-Cov-2 Positive Coronavirus Patients.*, Indo Am. J. P. Sci, 2020; 07(08).

**INTRODUCTION:**

In April 2020, a flare-up of novel coronavirus tainted pneumonia (COVID-19) was happened in Lahore, Pakistan and before long spread to different urban areas and nations. As indicated by the epidemiological investigation led by the Pakistani Center for Illness Control and Deterrence, 81.8% of patients are mellow/moderate pneumonia, and by February 11, the unrefined by and large death rate is 3.5%. As the epidemiological picture of COVID-19 is advancing every day, the worldwide death pace of shut cases continues rising. The clinical appearances of most patients incorporate fever, hack, windedness and myalgia and so forth, and radiographic proof exhibited pneumonia with numerous mottling and ground-glass obscurity 2. A small number of patients in genuine condition will continue to entanglements including intense respiratory misery disorder and cytokine storm, which may represent the purposes behind COVID-19 caused passing. Despite the generally low lethal ity, transmissibility of COVID-19 is end up being high. Basic propagation number ( $R_0$ ) of COVID-19 going from 1.6 to 6.49, whereas very popular of the displaying examines demonstrated the  $R_0$  worth more noteworthy than 3. SARS-CoV-2 has a place with genealogy B of beta-coronavirus family, zoonotic-inception single-strand RNA infections that are transmitted among creatures and individuals. The four pervasive infections of seven coronavirus relatives, 229E, OC43, NL63, and HKU1, cause just the mellow upper respiratory sicknesses, whereas other two exceptionally pathogenic strains, SARS-CoV and MERS-CoV, along through new distinguished SARS-CoV-2 are respected to represent worldwide dangers to general wellbeing. The full-genome sequencing information from two gatherings uncovered that SARS-CoV-2 contains six mama jor open understanding edges and offers around 81% of comparability with SARS-CoV, however 97.67% nucleotide personality to halfway RdRp quality and 97.4% character to RaTG13 of SARS-like bat coronavirus strain, individually. Similar to SARS-CoV, SARS-CoV-2 perceives a similar cell section receptor, angiotensin-changing over enzyme II (ACE2). Ongoing converse transcript Polymerase Chain Re-activity is viewed as "gold-standard" in the determination of SARS-CoV-2.

**METHODOLOGY:**

The blood tests remained gathered, in addition blood serum, plasma or entire blood remained exposed to ICG test in understanding through maker's

convention. In a nutshell, 13  $\mu$ L of serum or plasma, or 25  $\mu$ L of entire blood tests remained included onto the example stacking zone shadowed by 100  $\mu$ L (2 drops) of test weakening arrangement. Before long (no longer than 17 min) of brooding, viral IgM- or IgG-containing positive examples ( Fig. 1 ) could appear both the T line (test) and C line (control); the examples with just C line remained viewed as negative ( Fig. 1 ); strips having no C line presented up ought to be considered as invalid test. All blood tests were gathered among March 8 and June 25, and ICG strip measure was achieved amongst March 2020 to June 2020 at Mayo Hospital Lahore. Our current research was conducted at Jinnah Hospital, Lahore from March 8, 2020 to May 19, 2020. Altogether of 108 examples, including 86 of consolidated examples and 22 clinical analyzed examples, were accessible for the indication beginning data (malady length 0–34 days), which remained extend from March 8, 2020 to May 19, 2020, and exposed to the IgM or IgG affectability test; side effect beginning data was not accessible for staying 28 cases. Among all the examples, 38 "medically identified" samples from 39 confirmed cases were exposed to neutralizer identification capacity in nucleic corrosive negative cases; 48 of examples remained utilized for compare child of the steadiness in plasma and entire blood tests, 15 of those were precluded as examples remained deceased. An absolute of 88 examples from 69 instances of constant RT-PCR consolidated SARS-CoV-2 positive cases through infection length material remained exposed to investigation. As indicated by the malady progress stage determined from the beginning of manifestation beginning, the dis-slip was isolated into beginning phase (2–8 days from beginning), intermediate stage (9–16 days) and late stage (over 17 days). As aggregate married in Table 1, positive paces of IgM or IgG in early stage are generally low, and steadily increment throughout malady movement. The IgM positive rate increasing from 14.2% of beginning phase to 79.7 and 76.3% in halfway in addition late stage, separately. The IgG positive rate in the affirmed cases is 5.8% in mid, 59.5% in middle of the road and 97.9% in late stage, individually. Vital, joining aftereffect of IgM and IgG, for example cases having either IgM or IgG positive, could essentially expand affectability of ICG measure, particularly at transitional stage. While IgM and IgG positive rates at the middle stage are 79.7% and 58.3%, individually, consolidating the two boundaries would carry a positive rate to 93.8%.

Figure 1:

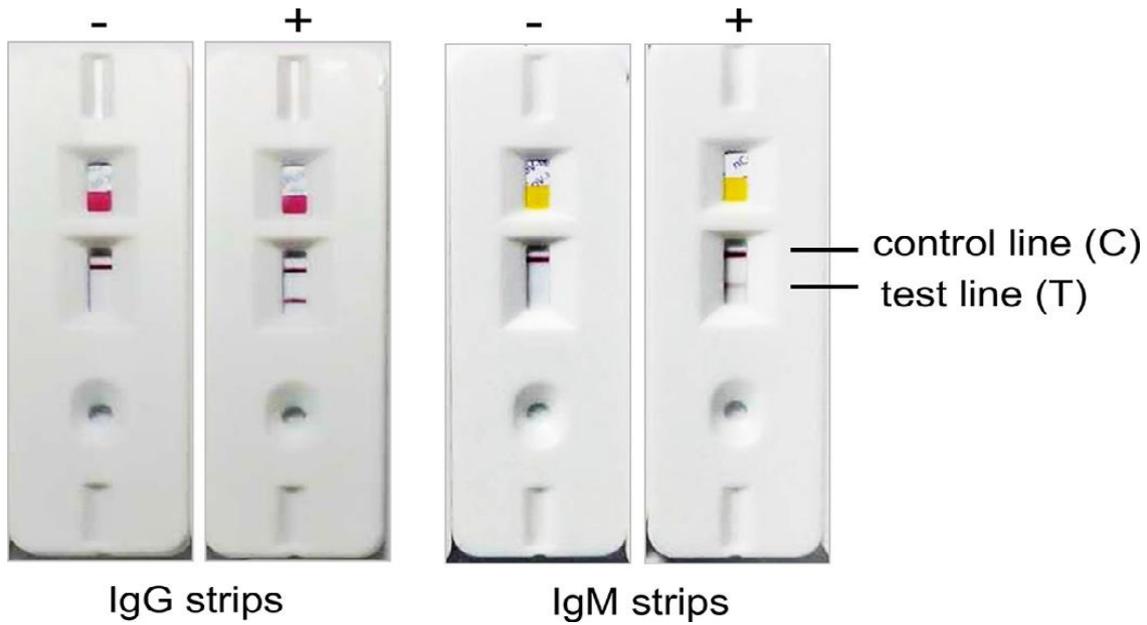


Table 1:

	Time scale (week)	-3	-2	-1	IP (°)	1	2 - 3 - 4 ...//...	8 - 12 ...//...	24 - 48 ....	.....	
A	General population				randomization	follow up	Monitoring immunological status (rapid and advanced test), clinical status, instrumental test, RT-PCR and Lab Marker				
B	High exposition subjects	estimated time from infection				follow up	As per A, with more frequent controls of covid infection (rapid test and virus research)				
C	Incidental diagnosis			date of positive test result		diagnosis ascertainment	As per D (Covid+)				
D	Symptoms			date of first symptom		differential diagnosis	Covid positive	Treat and monitor until healing or death. Special observation for relapsing risk and for residual contagiousness			
							Covid negative	As per (A): monitoring immunological status (rapid and advanced test), clinical status, instrumental test, RT-PCR and Lab Marker			
Chaos Phase						Diagnostic phase		Monitoring phase .....			
						Therapeutic (intensive) phase			Monitoring phase .....		
						Immunization / relapsing phase					

(°) Inception point and area of variability and uncertainty of the IP, i.e area around the presumed time "zero"

**RESULTS:**

A sum of 139 examples from 108 patients (49 males versus 58 woman), with the middle age of 59 years (extend from 23 to 97 years of age) that hospitalized at Jinnah Hospital, Lahore emergency clinic remained tried out the investigation. Seventy-eight patients were gathered blood once, 28 dad tents were gathered twice and 3 of the cases were gathered multiple times. Among examples, 97 of the examples from 78 dad patients were at first affirmed as SARS-CoV-2 disease by ongoing RT-PCR, 9 of the patients were at first negative to nucleic corrosive location however positive to the accompanying tests; altogether 38 nucleic corrosive

negative examples from 38 of the patients were "clinically diagnosed "as SARS-CoV-2 contamination as indicated by the fifth edition of rule on determination and treatment of the novel coronavirus pneumonia. In particular, the "clinical diagnosis "means the speculated cases were negative to the ongoing RT-PCR test however introduced viral pneumonia by radiography. Altogether blood tests remained gathered from March 8 and June 26, and ICG strip examine remained achieved from March 13 and June 28. Altogether of 108 examples, including 86 of consolidated examples and 25 clinical analyzed examples, remained available for the side effect

beginning data (illness length 0–35 days), which remained extend from March 8, 2020 to March 19, 2020, and exposed to the IgM or IgG affectability measure; manifestation beginning data was not accessible for staying 28 cases. Among all the examples, 39 "clinically diagnosed "samples from

39 cases were exposed to immunizer identification capacity in nucleic corrosive negative cases; 48 of examples remained utilized for the compare child of constancy in plasma also entire blood tests, 15 of which were precluded as examples were lapsed.

**Table 2:**

	Clinical positive samples	Clinical negative samples
Quantity	397	1
Total Positive	256	
Total Negative	24	
Total	72	
Percentage	88.66%	
		90

**DISCUSSION:**

The late March 2020 and June 2020 have seen third and biggest coronavirus episode in ongoing two decades. Owing to limited information identified with the new infection SARS-CoV-2 at beginning phase of episode and limit of infection through human-to-human transmissibility in dormant phase [6], the tainted cases were exponentially emerging in Lahore, the focal point of the pestilence, and quickly spread to household and abroad regions [7]. Logical gatherings have immediately deciphered the viral entire genome succession and explicit groundworks focusing on SARS-CoV-2 were structured and tried preclinically before enormously demonstrative application in center. The viral entire genome sequencing and viral nucleic corrosive discovery by constant RT-PCR are viewed as standard demonstrative methodologies [8]. While the entire genome grouping is both tedious and work escalated, continuous RT-PCR is usually quick and simple to do in emergency clinic research facilities,

that makes last method as "gold standard "of medical conclusion. Notwithstanding, the highest quality level additionally has their restrictions. In view of in excess of 30 0 distinguished cases by constant RT-PCR in medical research capability of Zhongyang emergency clinic, our past audit summed up the few explanations behind bogus negative rate, at both identification level and cases level [9]. From discovery viewpoints, superiority and affectability of location packs and viral safeguarding arrangements from various organizations may completely influence the identification precision and outcome in bogus negative chance. Additionally, it is demonstrated that, throughout malady progress, the overwhelming illness at the nasopharyngeal region of beginning phase would potentially get negative and the lower respiratory plot may seriously be contaminated at late stage. In this way, the pharyngeal swab may not be the best sampling site for altogether cases at dissimilar infection stage [10].

Table 3:

		Reference Testing		Total
		Reference Positive <sup>a</sup>	Reference Negative <sup>b</sup>	
Toxoplasma ICT IgG-IgM Result	Positive	129	0	129
	Negative	0	51	51
	Total	129	51	180

<sup>a</sup> Based on gold-standard serologic testing at PAMF-TSL at earlier time when child diagnosed

<sup>b</sup> Based on testing at PAMF-TSL or the University of Chicago Laboratory (Methods used included Vidas IgG, Bio-Rad IgG, bioMerieux Direct Agglutination, at various times)

<https://doi.org/10.1371/journal.pntd.0005670.t001>

### CONCLUSION:

In spite of the fact that ICG strip examine is described as the fast and sensitive integral discovery strategy in contradiction of Covid-19, now few confinements of the current test. One is that test remained done without explicitness examination. Our emergency clinic is situated in Lahore, the focal point of pestilence, and here are many, in some cases a large number of, affirmed or suspected COVID-19 cases every day. It is inoperable to choose "uninfected" cases for the negative control of explicitness examination, as the cases got afterwards flare-up might conceivably get contaminated through or with no indications. Such examine can be completed in regions where pandemic isn't extreme and network transmission is at a low possibility. Additional restriction, as referenced overhead, is that ICG results remain qualitative. In spite of positive groups on strips might give assorted degrees of shading, for example profound or light red, the shading itself doesn't correspond through wealth of immune response. A progressively exact method of distinguishing immune response titer remains through ELISA test, however undermined accommodation.

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