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Differential Blood Count In Patients with Novel Coronavirus Infection: A Retrospective Study

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Abstract: ***Study Design:*** *Retrospective study.*
Purpose: *The objective of our study to analyse differential blood count (DC) and reveal infectious characteristics of novel coronavirus COVID 19.*
Background: *Afterinitial epidemic outbreak in wuhan (china), novel coronavirus COVID 19 became pandemic and reached more than 95% of the countries of the world. Since it is a new virus and very few information had been known about it; our aim to analyse differential blood count (DC) and reveal infectious characteristics of novel coronavirus COVID 19.*
Methods*: We performed a retrospective study on 60 COVID-19 cases with laboratoryconfirmed cases in COVID centre of Rajendra institute of medical sciences,Ranchi, Jharkhand, India during march 2020 to may 2020.*
Results*: Out of 60 patients, 65% were male and female patients account for 35%. The aged in 11~20, 21~35, over 50 years were accounts for 20%, 38.3%,15%, respectively; while The aged below 10 years accounts for only 5% of overall patients. Fever (83.3%) and Cough (68.3%) were common clinical symptoms. Total leukocyte count were roughly within normal limit except in patients with severe symptoms. Lymphocytes count were in lower range in almost all patients but lymphocytopenia was there in 41.6% of cases and severity of lymphopenia was associated with severity of symptoms.*
Conclusions*: Our data provide information that lymphocytes counts were in lower range in overall diagnosed COVID-19 patients and severe Lymphopenia may be a risk factor with poor prognosis.Total leukocyte count were within normal limit except in severe cases that may be due to accompanying bacterial infection*
Key words: *novel coronavirus; Differential count; COVID-19; risk factor; Lymphocyte count*

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I. Introduction

After outbreak in wuhan (china) in December 2019, infection of novel corona virus (COVID 19) became pandemic and involved more than 90% of counties of world[3]. It is a beta coronavirus that possibly originated from wild animals that genome is highly homologous to bats[1].

Until 13th June 2020, It has affected 78 lakh population worldwide and 4.3 lakh patients had lost their life due to it. The World Health Organization (WHO) has declared it to be a public health emergency of international concern. India is the 2nd most populous country and first according to population density. As human to human transmission is the main way and henceforth it is very difficult task to prevent, control and manage COVID 19 patients in developing country like India[2,4]. Until 13thJune 2020, infection had reached up to 3.18 lakh with death of about 9000 people. Despite the rapid spread over the world, the clinical features and laboratory inspection of COVID-19 keep largely unclear. Coronavirus (COVID 19) can cause myriad of symptoms ranging from asymptomatic to severe life disabling pneumonia. Clinical characteristics of severe COVID 19 pneumonia resemble to that of Severe acute respiratory syndrome (SARS) and acute respiratory distress syndrome (ARDS)[5].The main clinical features of COVID-19 patients are fever, cough and sore throat and in some cases anosmia occasionally.

As COVID 19 is new virus and hence pathophysiologic mechanism, monitoring parameters and management are largely unknown.

Our aim is to analyse differential blood count (DC) picture in patients with COVID 19 infection diagnosed by RTPCR.

II. Methods

We performed a retrospective studybased on differential blood count of laboratoryconfirmed 60 cases with COVID-19. Patients were admitted in COVID centre of Rajendra institute of medical sciences, Ranchi, Jharkhand, India from march 2020 to may 2020.

Confirmed positive case was defined as a positive based on the real-time reverse transcriptase polymerase chain reaction (RT-PCR) assay for nasal and pharyngeal swab specimens. Only laboratory confirmed cases were taken in the study and all other suspected and clinically diagnosed cases were excluded. Differential blood count (DC) of all patients with positive COVID 19 were done and analysed.

III. Results

We have performed our study on laboratory confirmed 60 COVID 19 patients. Out of 60 patients, 65% were male and female patients account for 35%. The aged in 11~20, 21~35, over 50 years were accounts for 20%, 38.3%,15%, respectively; while the aged below 10 years accounts for only 5% of overall patients. Total leukocyte count (TLC) were within normal limits in 80% cases and higher in 20% cases. Neutrophilia were in 30% cases; however both leucocytosis and neutrophilia were in severe cases. Monocyte counts were increased in 45% cases. Fever (83.3%) and Cough (68.3%) were common clinical symptoms. Total leukocyte count were roughly within normal limit except in patients with severe symptoms. Lymphocytes count of overall patients were decreased and severity of lymphocytopenia was associated with severity of symptoms.

IV. Discussion

Novel coronavirus COVID 19 is a new betacoronavirus which is transmitted by mainly by droplets and direct contact with the patient's body secretions. Until 18th may It has affected 78 lakh population worldwide and 4.3 lakh patients had lost their life due to it and still infections was rising. There are many diagnostic methods based on antigen as well as on antibodies but real-time reverse transcriptase polymerase chain reaction (RT-PCR) assay for nasal and pharyngeal swab specimens is the well-known and best method for diagnosis as per guideline of WHO and ICMR. Till date there is no effective treatment and vaccines are available. The main treatment is still symptomatic and supportive. However, there are many drugs and vaccine are in trial phase that may be helpful in treating COVID 19 patients.

We have taken 60 patients in the this study and differential blood count (DC) of all COVID 19 patient were done and analysed. In our study, there was leucocytosis in (20%) cases, Neutrophilia in 30 % of cases. Lymphocyte count were in lower range in almost all patients but lymphocytopenia was there in 41.6% of cases.

V. Conclusion

In summary, our data provides information that lymphocyte count were lower in range in all patients and lymphocytopenia were seen in about half of COVID 19 patients. Lower lymphocytes levels in case of COVID-19 patients may be a risk factor for unfavourable prognosis. Leucocytosis and neutrophilia were seen in severe COVID-19 patients may be accompanying bacterial infection.

References

[1]. World Health Organization. Statement on the second meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV). https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-internation al-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019 -ncov).

[2]. Peng Zhou, Xing-Lou Yang, Xian-Guang Wang, et al. A Pneumonia Outbreak Associated With a New Coronavirus of Probable Bat Origin. Nature. 2020. doi: 10.1038/s41586-020-2012-7

[3]. Li Q, Guan X, Wu P, et al. Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus-Infected Pneumonia. N Engl J Med 2020.

[4]. Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet 2020.

[5]. Jinnong Zhang, Luqian Zhou, [...], and XuelinChenTherapeutic and triage strategies for 2019 novel coronavirus disease in fever clinics. Lancet.Respir Med.2020 March 8 (3) e11-e12

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