



Seeking laboratory investigations by diabetic patients during COVID-19 lockdown of Eastern Nepal

Apeksha Niraula, Madhab Lamsal & Robin Maskey

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Seeking laboratory investigations by diabetic patients during COVID-19 lockdown of Eastern Nepal

Dear Sir,

COVID-19 and Diabetes Mellitus (DM) have been reported to be one of the lethal cocktails [1]. COVID-19 infection in diabetic patients has shown to progress to more severe form and can lead to death [1]. There was a nation-wide lockdown in developing countries like Nepal from March 24 to June 14 2020 [2] to prevent the transmission of virus. Hence, the diabetic patients could not come on a regular medical follow-up and undergo routine investigations. Nepal, though an under-developed country, surprisingly has a high prevalence of DM comparable to other developing nations [3]. A recent meta-analysis confirmed that there is a concomitantly lower level of awareness (52.7%), treatment (45.3%), and glycemic control (36.7%) prevalent in diabetic population under anti-diabetic treatment in Nepal [3]. Lockdown has shown a negative impact on glycemic control and worsened the complication due to DM [4]. Nepal had a lockdown approximately for a period of 4 months as the COVID-19 cases were on upsurge [2]. During this period, hospitals were only undergoing emergency procedures and correspondingly emergency laboratory parameters were only processed.

For the period of 4 months, our routine biochemistry laboratory at B.P. Koirala Institute of Health Sciences, Dharan, Nepal, received approximately 1448 blood samples for fasting and post-prandial blood glucose levels from diagnosed cases of DM. We had also received around 688 samples for glycated hemoglobin (HbA1c). The mean age of the patient was 50.76 ± 14.61 years. The percentage of females was 51%, quite close to males. On analyzing the results, we found the mean fasting blood glucose (mg/dl) was 136.16 ± 64.62 ; mean post-prandial blood glucose (mg/dl) was 209.22 ± 112.32 , and HbA1c level (%) was 7.31 ± 2.32 , respectively. The values were comparatively higher compared to our laboratory data before lockdown (December 2019 to February 2020) which was fasting blood glucose (mg/dl): 126.16 ± 44.62 ; mean post-prandial blood glucose (mg/dl): 190.48 ± 102.32 , and HbA1c level (%): 7.01 ± 1.22 , respectively. As our findings suggest, there was a high prevalence of hyperglycemia during the lockdown, thereby increasing the risk for the patients in acquiring infections and diabetes-related complications. Since DM is a well-known risk factor for developing respiratory infections, these patients

might be in high risk of getting COVID-19 infection and their complications [1].

The nation-wide lockdown is a crucial step to prevent the transmission of infection during the pandemic [1]. But there is a high possibility of the lockdown to affect the chronic disease patients like DM in terms of deterioration of glycemic control and disease-associated risk [4]. Also, confinement in the specific space, erratic diet, increased stress, restriction in continuing the physical activities could be the other possibilities for the poor glycemic control [4]. In addition, decreased transportation facilities prevent the patient to seek the medical help and undergo routine laboratory investigations at their required follow-up schedule [4]. Laboratories in developing countries like Nepal import major proportion of chemicals and reagents from abroad. In this scenario, there might be shortage of reagents [5], in accessibility to the supplier which might lead to laboratory parameters to be temporarily shut down. Patients might not get drugs, insulin, and glucose testing strips and glucometers as easily as they could during normal days [1]. Thus, all of these factors might have led to increase in hyperglycemia during the lockdown of COVID-19. This consequently has increased the burden of the disease, exaggerated the stress in the patient's and increased the risk for diabetes-related impediments.

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Apeksha Niraula and Madhab Lamsal
*Department of Biochemistry, B.P. Koirala
Institute of Health Sciences, Dharan, Nepal*

 apeksha.niraula@bpkihs.edu

 <http://orcid.org/0000-0003-2866-7969>

 <http://orcid.org/0000-0003-2619-7414>

Robin Maskey

*Department of Internal Medicine, B.P. Koirala
Institute of Health Sciences, Dharan, Nepal*

 <http://orcid.org/0000-0001-8272-5141>

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