Impact of Diabetes Mellitus on COVID-19 and Releavances

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Abstract

COVID-19 treatment in diabetic individuals necessitates a multidisciplinary approach to reduce the risk of medical comorbidities. Due to immune system failure, DM affected people are prone to COVID infection maximum. The connection involving diabetes mellitus and COVID-19 have been explored. This paper discusses about the relevant factors that matches Diabetes Mellitus with COVID-19. This Review covers recent developments in DM and COVID-19, with a concentration on medical advice for Diabetes affected people who are at risk of or afflicted by COVID-19. Because of its great prevalence, most existing studies have not differentiated between diabetes mellitus types which focuses solely on Diabetes Mellitus. The negative effects of COVID-19 were decreased by utilizing insulin and/or other oral hypoglycemic agent's medications to maintain correct hyperglycemia. and entrance while lowering virus clearance. Furthermore, it has a major impact on proteins by generating glycosylation and changing complement component, and glycosylation makes cells more vulnerable.

1. INTRODUCTION

The COVID-19 epidemic has wreaked havoc all over the earth. There is growing evidence that COVID-19 individuals can have olfactory impairment. Neurological symptoms such as transient cerebrovascular disease, muscle fiber damage, and reduced consciousness can appear in people having severe infections. The COVID-19 epidemic has wreaked havoc on worldwide health-care systems and financial sustainability. The research on COVID-19's influence on individuals with diabetes (PWD) is minimal, although it is growing. Individuals with diabetes found to have a higher chance of COVID19 infection, while the proof to quantify this risk is shaky. The measure to which socio-demographic factors mitigate this relationship is unknown. Elevated glucose levels, in particular, provide optimum environment for the virus to evade and undermine the first line of defense in lungs, epithelial layer and register respiratory cells.

II ORIGINATION AND DEVELOPMENT OF COVID-19

A. There is a big difficulty because the current disease incidence is still in the hundreds of millions each day, allowing the virus to evolve easily. As a result, the disease has spread around the globe and will most certainly many years in future. It is therefore critical to get a thorough understanding of the mechanisms that cause illness progression, to promote medication adherence, and to create innovative therapeutic techniques. Influenza, cough, tiredness, dyspnea, myalgia, and chest

discomfort are the most prevalent symptoms of COVID-19, with diarrhea being one of the less common side effects. Patients appear with mild to severe illness in 75–85% of documented cases, and the sickness is treatable without hospitalization, with sufferers recuperating. Roughly 18% recognized disease proceed to a severe stage, with pneumonia being the most common consequence.

Among 5–8% cases, the condition progresses to the point of become accounting for roughly 25% of these cases. Even having an exponential increase more silent infected than symptomatic diseases, if permitted to fully contaminate the world's population, this pathogen would induce over 100 million hospitalized and tens of millions of deaths.

B. COVID-19 Impact on Diabetes

Covid-19 in addition to offering direct immediate dangers to PWD, may also contribute to far worse diabetes performance as a result of pandemic-related disturbances, including as stress and modifications in routine care, food, and physical activity. COVID-19 has been linked to (PWD). PWDs in general, has been extended to COVID-19. Despite the fact that concerns consistency in measuring, existing evidence suggests that COVID-19 is linked to poorer outcomes in PWD. COVID-19 severity is related with increasing age, male gender, hypertensive, and vascular comorbidities. In reality, the death rate rises with age for a variety of diseases, notably seasonal influenza epidemics. PWDs are at a higher risk of dying in general, and this has been extrapolated to COVID-19. Despite the difficulty of quantifying COVID-19's association with poor outcomes in PWD due to concerns with study quality and imprecision, present evidence suggest that COVID-19 is linked to poor outcomes in PWD.

COVID-19 severity is linked to higher risk factors such as age, gender, hypotension, and cardiovascular comorbidities. The level of plasma glucose (FPG) upon admittance has also significant contributing fatalities of COVID-19. A number of treatment methods lopinavir etc have been studied in well-controlled trials with varying degrees of success. COVID-19 also poses significant indirect dangers to people with disabilities. It's unknown whether people with disabilities are more prone to contract COVID-19. In persons with diabetes, viral infections can cause diabetes or aggravate hyperglycemia, which can have a negative impact on prognosis. Furthermore, the usage of glucocorticoids may exacerbate the problem. Viruses can have a bad impact on their prognosis which cause Diabetes. Additionally, the use of glucocorticoids may aggravate the condition. Antihyperglycemic treatments may be limited in COVID-19 individuals with hypoxia due to the possible harm of certain oral drugs. The impaired immune system response to bacterial diseases. Increased blood glucose thought to alter bacterial intracellular breakdown.

C. Diabatic and Non Diabetic people with COVID-19

COVID-19 has affected health care, as well as access to drugs and supplies in some circumstances. Other national calamities have shown the crisis. Nutrition and exercise are cornerstones of diabetes personality, and they can help people with diabetes and those with cardiometabolic multimorbidity's avoid negative consequences. We believe that elevated glucose levels can aid disease progression through a variety of mechanisms, explaining variation reported throughout the people. It includes new research and treatment, as well as warnings about treatment techniques and primary healthcare conditions that cause blood glucose levels to rise. Glycolysis as a Major Viral Replication Source Viruses do not have their own metabolism because they are non-living. As a result, viruses require nucleotides for biogenesis, amino acids for novel synthesis of protein. Most

pathogens have evolved to boost the availability of nourishment for their own multiplication by altering the enzymatic reactions of host cells upon invasion.

The move to glycolysis as the primary metabolic pathway, which provides the virus with ATP quickly and without the need for ox glycation, is one of the most prevalent changes. On the other hand, diabetes kills one out of every five COVID-19 patients. Similarly, lowering blood glucose levels during an illness lowers viral multiplication. Importantly, it was discovered that SARS-CoV-2 replication in monocytes is fully reliant on ATP produced by glycolysis. As a result, glucose availability and glycolytic performance are critical characteristics for viral replication. N-glycosylation is a post-translational modification in which glycan trees are added to proteins' N(X)T/S signature sites. It impacts more than 55% of human proteins. Importantly, glycogen, the primary polymer of glucose in gluconeogenesis, can be transformed to all of the sugars required for glycan tree formation. Glucose levels monitoring is essential more frequently (in persons who self-monitor), yet it is unclear what research was utilized to generate these suggestions.

Impact of Insulin

Insulin administration has been demonstrated to be a successful strategy for attaining glycemic objectives as well as minimizing the likelihood of severe treatment cytokines, and regulate toll-like regions (TLRs) implicated in host defense in mononuclear cells. Insulin inhibits the activation of the proinflammatory nuclei.
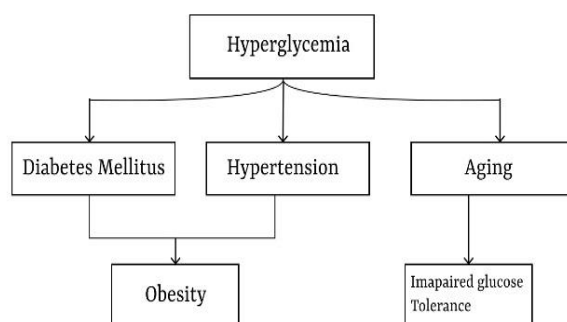

Fig 1: Divisions of Hyperglycemia

D. Diabetes Mellitus Management in COVID-19

During the current pandemic, the optimal therapy of Covid-19 in patients with T2D has been hotly contested, particularly in terms of the range of medications most suited for glycemia that may also lower consequences. Furthermore, preclinical models revealed a relationship between ACE2 overexpression and a number of anti-diabetic medications . Whereas reduced immunity characteristics of ageing as weel as DM – are thought to drive the former, increased immune responses are thought to be the cause of the latter. To answer these intertwined problems, more study is required, and we offer some suggestions for prioritising below. We examine alternative therapies for diabetic catastrophes as well as for less severe hyperglycemia care, where various treatments may be warranted. Given that a number of medications have been repurposed as possible Covid-19 medicines.This debate is critical since early glycaemic management may be a key therapeutic option for hyperglycemic patients.More research is needed on the protein expression and transcription factors of these transmitters in the above organs, as well as their vulnerability.

II   LITERATURE SURVEY

Hussain et al study aims to give us better knowledge and understanding about the current threatening corona virus disease in people especially with diabetes. The most fundamental connection in DM as well as COVID-19 are given as persistent inflammation, innate immune response, and probability of pancreas and so on. It is said it is more likely to happen in early stages and the viral shedding is based on the person's disease severity. Most commonly noticed symptoms are headache, sore throat, nausea,

diarrhoea occurs less. It is said that patients with certain comorbidities such as diabetes mellitus, CVD, hypertension, cancer are more likely to get affected to COVID-19 and lead to severe cases. In a Chinese meta-analysis, which consisted of 1527 patients, the ones with diabetes and hypertension had two-fold increase and ones with CVD had 3-fold risk when compared with patients no such comorbidities. Diabetes mellitus is associated with several macro and micro vascular conditions, metabolic abnormalities which leads to affect our response to pathogens and also affects patients' survival. Influenza and pneumonia are a considered to be common and serious issue in T2DM patients. COVID-19 patients with diabetes leads way to increased stress conditions and blood glucose level, greater outcome of hyperglycaemic hormones, abnormal variability of glucose. It is conveyed that so such evidences subsist to hold up the discontinuation of ACEI, angiotensin receptor blockers or thiazolidinediones in COVID-19 diabetes patients with COVID-19. Thought diabetes is said to lead worse clinical outcomes, the liability of SARS-CoV-2 is not is higher in patients with DM compared to general cases. No appropriate date is available to determine the management of COVID-19. But it is said DM is one among the evident predictor of critical sickness and mortality in COVID-19 patients [1].

Liu, Z et al in their paper discuss that right from the epidemic COVID-19, number of surveys undergone to inspect link among DM and COVID-19. This study undertook 1800 patients of Leishenshan hospital in Wuhan, among which 139 patients have diagnosed with diabetes mellitus. They executed this study by collecting patient's data, medical record. On analyzing the study, their data conveyed that the proportion of severity of COVID-19 strain is higher than the patients without diabetes. The study also conveyed among 1800 patients 64.0% of patients is affected with cardiovascular diseases, which rates higher than patients without diabetes [2].

Gazzaz, Z. J et al however in their study proposes that during times risk in COVID-19. The study suggests that the diabetes patients needed a team to minimize the severity of complications. In this study they have taken various other studies into account to show the impact of COVID-19. And a Chinese meta-analysis reported that patients with raised HbA1c are at high risk. It also suggested they should act in accordance with doctor's recommendation and regulate glucose metabolism. This study mainly concentrated to detail about ACE2 receptors. Additionally, a random study examined that increased lung ACE2 expression related to diabetes mellitus. This study also tabulated the outcome risks among the patients with diabetes by collecting the survey taken by various authors. The Tabulation outputs the prevalence of diabetes, outcome, and risk. The study concludes with a note to take vaccines and the community must follow the guidelines and protocols especially who are more defenseless [3].

Meng, X., et al as per their discussion it is said there is a huge and increased evidence that the presence of olfactory dysfunction (OD) is seen in COVID-19 patients. Nevertheless, pathogenic mechanism of the latter remains unclear. Loss of smell named as anosmia is one of the main symptoms which accompanies other known symptoms of the infection. Occurrence of Anosmia is mainly caused by infections in upper respiratory tracts. Incidence rate of olfactory dysfunction is given as 33.9-68% and it has female dominance. Comorbidities of coronavirus disease often include

Anosmia and dysgeusia. SARS-CoV-2 make use of spiny protein S1, with virus sticks interacting with ACE2 which is the functional receptor for SARS-CoV-2. It leads to neurological exemplifications in direct/indirect ways because of the ACE2 expression and distribution in the nervous system. Pathogenic sites of SARS-CoV-2 is said to nose and throat and it is confirmed that nasal cavity is the area of susceptibility. For the diagnosis of OD, Olfactory function test has been the main backbone. However, may studies conveyed many were untested by OFT. It is said that Type A and C genotype show increased pathogenicity for nasal cavity especially in American and European countries. Otolaryngologists is asked to be aware about this in order to avoid delaying in diagnosis of COVID-19[4].

Ge, H., et al discussed about SARS-CoV-2, which was announced by WHO as coronavirus disease 2019 (COVID-19) is single Picornavirus of the Coronaviridae family. SARS-CoV-2 is said by means of which binds to the cellular receptor. Transmissibility is said to be an important cause of the infection. It is reported that more are less 25%-50% of the infected cases are found with some associated diseases like malignancy, persistent pulmonary disease. And it is said male were more predominant to disease. It is reported that the average form of years. It is also found that the longest incubation period is 24 days. But it is also said in some patient's fever was developed after hospitalization and they developed the other symptoms of COVID-19. Diagnosis of COVID-19 done by RT-PCR test and chest CT is taken when the severity level in high in patients. Lung abnormalities were severely found through CT in patients nearly after 10 days of the infection. ICU patients had increased chemokine levels and plasma cytokine and it is said most of the ICU patients were older and were associated with several other comorbidities. Coming to the treatment point of view no particular drugs. As per Pathological finding, the lung biopsy specimens of a patient showed bilateral diffuse alveolar damage with cellular fibromyxoid exudates. According to the discussions severe and ICU patients are more relative to high mortality [5].

Ugwueze et al discussed about Corona virus, is a virus threatened, and which is more termed in non- spreadable diseases. Diabetes mellitus is also a non-spreadable disease related with aggravating COVID-19 patients. The study has mentioned that COVID-19 and diabetes have an impact on each other in means of outcome and clinical progression. The study has covered about both diseases. The study said that it possible to have similar diabetes effect on viral infections. Under the topic of effect of diabetes on COVID-19 infection the mentioned that patient with DM have increased level of predisposition to viral and bacterial infection and conveyed that one of the responsible mechanisms is impaired immunity. It is also said that pancreas injury in rarely seen in Covid-19 patients. The paper has taken several other study's analysis and showed impact of COVID-19 is way more with diabetes. And conveyed that systematic hypertension, ischemic heart disease and obesity were commonly noted among the comorbidities in patients. Glycemic difference is an auguring parameter in virus infected individual with diabetes and also stated hyperglycemia deteriorate some lung functionalities which is the main target for Covid-19 whereas hypoglycemia results in worst overall mortality rate. Insulin must be taken in special importance to patients especially who have hyperglycemia or in ICU [6].

Li, G., Chen et al in their study starts with a note that diabetes is being one of the pervasive in the midst. They also say that the most infected people are noticed with diabetes mellitus, cerebral vascular disease which may result to poor clinical outcomes. A meta-analysis mentioned This outcome has advised the patients with diabetes may be an easy target for inflammation and imbalanced immune response. The paper also detailed the Glycemic Management in COVID-19 patients. It briefed the deliberation on the use of drugs taken by diabetes patients. On the other hand,

they conveyed that among the patients, most will require insulin treatment mainly patients with severe sickness. The study tries to convey that the emerging data says that pre-existing diabetes is linked with continuation and poor outcomes of the virus. This study finally concluded that it is necessary to examine and check if the diabetes patients are more prone for poor outcome of the disease [7]. Xu, Z., Wang et al in their study have discussions about patients affected with COVID-19 associated with diabetes is already said to have elevated risk factor compared to non-diabetes patients. Type 2 diabetes is said to have high impact on COVID-19 patients and had worsen the clinical status and increased the severity rate and mortality. On considering the study's data the pervasiveness history of diabetes is 31.3%, and it strongly conveys that DM is risk in severe COVID-19 patients. Because of study's analysis on clinical status of the sick, the survival curve showed T2DM is a with T2DM were mostly older in age, which might also be the reason for low survival rate. As per the study though glucocorticoid is way highly used in critical stages, it also considered to be harmful to the patients associated with T2DM.GC therapy in type 2 diabetes showed higher IL-6 levels. The fatality rate was also higher in T2DM patients who were treated with GC compared to non-DM patients if not used in a proper way and it mentioned they must have a clear knowledge about the side effects of GC and must use it in right person. Considering the past SARS-CoV and MERS-CoV not improved the mortality rate. Insulin is thereby suggested to be the safest choice in this unpredictability. Among them 27(23.7%) lost their lives who had high inflammation and several other complications when compared with non-diabetes patients. And so, it is considered that T2DM has increased the critical sickness risk in COVID-19 patients [8].

Muniangi-Muhitu et al discussed about continues on the recently threatening COVID-19, it is said that the recognized risk factors of this infection. Is Diabetes and Covid-19 a dangerous circle? Defective and adaptive immunity response is considered as inferior ability to fight against infection who is associated with diabetes especially patients who are obese. Coming to DPP4 (Dipeptidyl peptidase 4) are advised. It doesn't alter the immune response in both T2D and non T2D patients. And it is concluded that it is necessary to validate the above findings to determine which of the above is optimal anti-diabetic treatments for T2D and COVID-19 management. And added to the later it is said to regulate which is likely to show effectual outcome in decreasing severe demonstrations and glycemic related emergencies in COVID-19[9].

Insulin	Anti-Inflammatory effect, critically ill
Glucagon-like peptide-1 receptor agonist	Anti-Inflammatory effect, Problem on respiratory system, Issues in Cardiovascular system
Pioglitazone	Anti-Inflammatory effect, Problem on respiratory system, Issues in Cardiovascular system
Metformin	Anti-Inflammatory effect, Issues in Cardiovascular system
Dipeptidyl Peptidase-4 Inhibitor	Covid Improvement
Sodium-glucose cotransporter 2 inhibitors	Anti-Inflammatory effect, Issues in Cardiovascular system

Table 1: Drugs for Glucose Lowering

Varghese, E., Samuel et al noticed that diabetes patients are noted with high risk in COVID-19 infection. Seeing in detail about Metformin, it shows a significant result in reducing fatality rates

and infection severity. It is widely examined for its anti-inflammatory, antioxidant, anti-viral and immunomodulatory abilities because it has its own capacity to give out cardiopulmonary and vascular protection. Further we are going to see the feasible molecular mechanisms and beneficial effects of Metformin. Metformin not only guards metabolically but also the impediments which elaborates the immune response and coagulating events. To pinpoint the druggable aims for Metformin intervention, protein-protein interaction using cutting-edge technology namely mass spectrometry gives a hand. Many studies had made a note that the prior use of Metformin reduced mortality rates and mentioned that the use of metformin in non-hospitalized patients might prevent the development of the disease and emergency conditions. Clinical studies supported the benefits and described metformin shows low survival rate and admissions in hospital on usage of outpatients. As metformin reduces metabolic stress by decreasing glucose uptake by peripheral tissues and gluconeogenesis, it results in reduced heart failure cases and inflammation. In a study conducted on Metformin or non-Metformin hypoglycemic drugs among 110 infected patients with diabetes, metformin reports in hyperglycemia, high disease severity and increased level of lactate dehydrogenase. On the other side a study reported no specific relationship is related. So, it is said that scientific and technical point of view is wanted to examine the molecular pharmacology of Metformin action and needs further examination on the effects of metformin [10].

Abdi, A., Jalilian et al studied that till date there is no extensive study that details the exact link between COVID-19 AND diabetes. It is reported that the patients with both diabetes and non-diabetes had similar symptoms expect for blood glucose and glycated hemoglobin in diabetes patients. By contrast Chen conveyed that diabetes is the reason to draw out the acceptance of the infection and also conveys that, this controversy is due to difference in viruses. And this might be due to anti-diabetic drugs which aims in DDP4 activity and reduces insulin secretion and decrease blood glucose level. The diabetes patients with COVID-19 are suggested to manage blood glucose and glycemic control, self-monitoring, reduce the unpropitious effects of drugs,

urinary ketones in T1DM if fever with hyperglycemia is shown up, decrease the dosage of anti-diabetic drugs and avoid hyperglycemic agents. It is conveyed that extra care must be provided to sufficient protein intake, nutrition, daily exercise and taking vaccines on time. It is said that patients with diabetes may need ample amount of hydration, steam inhalation, indicative treatment with acetaminophen. It conveys that it is better to use insulin way of treatment rather than oral anti-glycemic agents in critical cases. HCQ (hydroxychloroquine) method of treatment is advised as it is safe and useful. In the latter case the doctor prescribed anti-viral agents (ganciclovir, oseltamivir) and antibiotics (meropenem, linezolid). It is well recorded and various study conveys that diabetes patients are more likely to evolve the infection and complications such as ARDS and much more and even death [11]

Lim, S., Bae et al had lot of initial studies found that the current threatening COVID-19 is a risk in diabetes patients. It is said that cardiovascular disease, obesity, T1DM and T2DM are most commonly seen in patients with COVID-19. On an additional note, it is said that it makes infected patients liable to hyperglycemia which modifies immune

therefore, resulting severe COVID cases. Considering pharmacological aspect SGLT2 tends to show unpropitious effect and so it not recommended to COVID-19 patients. Insulin is a suggested way of approach to control acute glycaemia. Patients requiring insulin often is in need of high dose i.e., up to or exceeding 100IU per day. Needs in Changes of insulin are related to levels of inflammatory cytokines. Production of cytokines can be decreased by glucocorticoid therapy. Ketoacidosis is likely to be associated with T1DM, but it seems to also be associated in T2DM

patients. DDP4 are mostly commonly used to reduce blood glucose levels and in treatment of T2DM patients. DDP4 inhibition is said to cause risk when associated with viral infection. Recommendations of Antidiabetic drugs for Drucker's associated with diabetes are DDP4 and GLP1 in case of mild to moderate infection but when comes to critical cases insulin is suggested and also metformin is suggested to mild to moderate cases while not in severe conditions. When coming to T1DM patients and COVID-19, T1DM patients are mostly found to have high HbA$_{1c}$, past history of cardiovascular events, arterial hypertension, renal impairment and also found to have high plasma concentration at time of hospital admissions. Pulmonary embolism is seemed to be found higher in T2DM patients. Leg pain, breathing problem and chest ache are assumed to be thromboembolic event and suggested consult physician. Preventing to get infected from the virus stands as a best way of solution firstly. Consulting physician is necessary when suspected with symptoms. Medications are said to be advised based on the severity level and DM patients are said to concentrate on healthy way of living to reduce risk caused by the threatening coronavirus disease [12]. Fig 2 shows Risk parameters of Glucose Control.
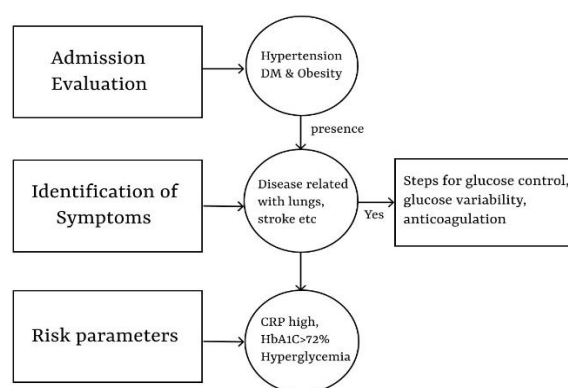

Fig 2: Risk Parameters of Glucose Control

Gupta, R., Hussain et al found out some reason behind the escalated level of severity in COVID-19 cases associated with diabetes is not clearly known. Factors such as impaired immune response, increased response od inflammation, hypercoagulation results to high level of severity. Many studies have proven that the risking level of the infection is higher in DM patients when compared to non-diabetes patients for example Chinese Centre for Disease control has reported the fatality rate among 44,672 in patients is 7.3% with DM whereas non-diabetes patients 2.3% of fatality rate. It is also said that the pervasiveness of diabetes is more or less similar to that of general cases with COVID-19. Some contributing reasons for increased severity level are Glycemic instability, immune flaws particularly impaired T-cells response and some accompanying symptomology such as kidney, heart diseases and obesity. Already existing comorbidities are one of the main reasons to worsen the prognosis. And occurrence of hypoglycemia during the treatment makes the clinical outcomes poor. Diabetes is related with increased level of plasminogen which results in increased level of virulence of SARS-Cov-2. Already existing pro-inflammatory state is said to be liable to ARDS and also multi-organ dysfunction because it intensifies the cytokine storm. The SARS-CoV-2 gives entry to the cell which includes various process by binding into ACE2.Discussion of anti-hyperglycemic and anti-hypertensive drugs are as follows. Metformin is said to show moderate benefits when comes to infections in lower respiratory tracts. Thiazolidinediones show unfavorable

result because it leads to congestive heart failure and fluid retention which is a risk. Sulfonylureas are effective whenever it is possible to monitor blood glucose level. DDP4 is also considered as entry of SARS-CoV -2 because it acted as prime receptor of MERS. SGLT-2 inhibitors decrease lactate production which thereby reduce viral entry, but also considered to activate ACE2 indirectly when used along ACE2 inhibitors. The use of SGLT-2 might be discontinued due to risk involved such as dehydration and euglycemic. Insulin is also said to increase ACE2 expression, insulin is it said to be worth considering.

Insulin and sulfonylureas are said be to use by checking upon the glucose. ACE inhibitors and ARB are most commonly used in DM patients. These increase the level of ACE2 by converting angiotensin 1-angiotensin 2 which is

considered to be a risk but scientific experimental data conveyed that increased ACE2 do not result increased level of viral entry. Clinical studies conveyed that mortality rate was higher in patients who used ACE inhibitor and ARBs. But a study conveyed that China showed less mortality rate in use of ACE inhibitor and ARBs. So, the use of the latter remains unclear. It is suggested that patients with mild infection, decent oral intake to continue anti-hyperglycemic medications as it is considered too safe. As considering all the factors mentioned and several others it is said that diabetes is considered as a vital comorbidity and patients with DM should be of more concern [13]

Hartmann-Boyce et al with several studies have concluded patients with diabetes are said to have extended risk to COVID-19 compared with non-diabetes. It is said that there are certain factors like Body Mass Index, type of diabetes, diabetes control, history of patients, and particular medications also shows cause in severity of the diabetes patients. A study has conveyed type 2 diabetes is more likely to causes extended severity compared to type 1 but it is not fully reviewed. A retrospective study consisting of 451 patients from the country United States communicated that unmanageable hyperglycemia results in increased time period of the infection and higher mortality. Higher infection in patients leads in difficulty in managing blood glucose levels meanwhile it is reported well managed blood glucose levels shows improved outcome. Due to pandemic stress and lockdown rules and regulation diet and physical activity which stays as a main source for diabetes management gets affected and also anxiety and stress between people gets increased all this tends to be indirect ways which makes the risk factor high. Patients under these drugs are compulsory said to monitor glucose levels. A descriptive study conveys that insulin is suggested way to reduce hyperglycemia. Several institutions introduced percutaneous insulin protocols to treat diabetic ketoacidosis on floors with limited nursing staff in order to reduce the need of ICU beds. And coming to post COVID-19, illness such as obstacles faced by diabetes patients, stroke, acute myocardial infarctions and several other illnesses gets complicated because of lack of approach of routine health care due to the pandemic and this also results in morbidity and mortality even after the huge threat vanishes [14].

Roobini et al., [15,16] discussed about the relevance between Diabetes and COVID and also mentioned most impactful parameter which increases the severity level. Type 2 Diabetes have strong connection with Alzheimer as well as COVID-19 which is already discussed in some previous studies [17,18]. Various ranges of diseases are there which is classified using Machine Learning techniques [19,20].

Many reviews of machine learning applications in various domains have been published in the literature by a variety of scholars. [21][22][23][24]. This research will undoubtedly provide researchers with insight into the use of deep learning techniques in various applications. [25][26][27]. Machine learning approaches also address a variety of challenges. [28][29][30].

IV RESULTS AND DISCUSSION

Blood glucose levels in diabetics and hypertensive patients. The of FPG, 2h-PPG, and HbA1c in diabetics compared to controls have been calculated and reported using data from different surveys. According to raw data published in numerous publications, baseline FPG values in hypertension patients and healthy controls have been determined.
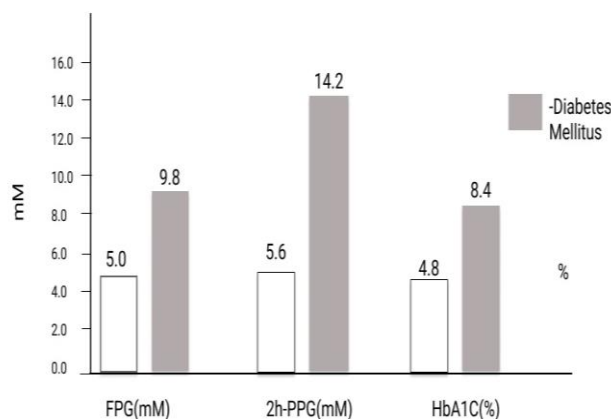

Fig.3. Glucose Level of Blood

Correlation Analysis:

Fig.4. Heat Map of the Correlations

V CONCLUSION

The relationship among diabetes and COVID-19 is still a work in progress. Despite the fact that various anti-diabetic medicines have an effect on intracellular entry molecules, clinical studies have not shown that these drugs enhance blood glucose control in COVID-19 infection. Anti-diabetic medications that reduce inflammation while maintaining adequate glucose control are ideal. Glucose imbalance have impact on those who suffer hyperglycemic episodes or are admitted to the ICU. Diabetes may be associated with a worse mortality in COVID-19 patients. However, the impact of diabetes care, particularly glucose tolerance, on the survival of COVID-19 people has not been thoroughly investigated. Except for ventilator or early hospitalization, no procedural approved to help in reducing COVID-19 patient death. We found that COVID-19 infection in DM was linked

with liver dysfunction etc in this observational analysis. The clinical situation was made worse by DM. The findings of this detailed study reveal that DM is a important factor for COVID-19 patients, contributing to their aggravation and mortality.

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