WER SRI LANKA 2020

Vol. 47 No. 37   **05th– 11th Sep 2020**

COVID 19 in Diabetic Patients

COVID-19 has become a potentially serious coronavirus with over 35 million affected and over 1 million deaths as a result of COVID-19.

People of all ages can be infected. For many – COVID-19 infection is mild with some flu-like symptoms with a majority of them needing minimum supportive care. However, in over 15% of cases of COVID-19, moderate to severe infections has led to a series of complications such as pneumonia, acute respiratory failure, acute liver and cardiac injuries, kidney failure, septic shock and multisystem inflammatory syndrome in children.[1]

The COVID pandemic and the NCD (Non Communicable disease) epidemic have brought about a deadly interplay of several factors:

- Underinvestment in the prevention, early diagnosis, screening, treatment and rehabilitation for NCDs where current health systems are unable to meet the health care needs of people affected by NCDs[2];

- Disruption of services for prevention and treatment of NCDs which can result in an upsurge in deaths from NCDs due to:

  * Decrease inpatient volume due to cancellation of elective care,

  * Government or public transport lock down hindering access to the health facilities,

  * Closure of outpatient disease specific clinics,

  * Insufficient staff to provide services,

  * Unavailability of hospital beds,

  * Unavailability / lack of stocks of essential medicines and other health products.[2]

Diabetes is one of the most prevalent chronic health conditions in the world, with devastating multi-systemic complications and with an estimate of over 463 million people afflicted with the disease in 2019.

In Italy, it was seen that among those dying of COVID-19 in their hospitals, 31% had type 2 diabetes.[2] The China Center for Disease Control and Prevention has shown an increase in mortality among people living with diabetes (2.3% overall and 7.3% for patients with diabetes).

As to whether people with diabetes are more likely to get COVID-19 than the general population still remains to be seen as there is still insufficient data to make those claims. Moreover, the problem lies in the probability of worse outcomes in people with diabetes. When diabetic patients develop infections such as COVID-19, it can potentially be harder to treat due to fluctuations in blood glucose levels and the increased risk of diabetes complications.

Diabetes mellitus (DM) has often been identified as an independent risk factor in the development of respiratory tract infections. Previous studies have shown the relationship between levels of blood glucose and the clinical course of Severe Acute Respiratory Syndrome (SARS). However, with the onset of COVID 19, several studies are being currently conducted on the clinical characteristics of patients with diabetes and who have been infected with the COVID-19 virus. One such study done among 199 COVID-19 pneumonia patients in Wuhan, China included 76 patients who were diabetic.[3] There were no statistically significant differences in the clinical

Contents

symptoms (such as fever, cough, dyspnea, fatigue and more) between diabetic and non-diabetic patients with COVID-19 pneumonia. However, when compared with patients without diabetes, patients with diabetes had a higher level of fasting plasma glucose (P<0.001), D-dimer level (P<0.001), white blood cell counts (P=0.011), total bilirubin (p=0.030) and blood urea nitrogen (p=0.022), along with a lower level of oxygen saturation (P<0.001), lymphocyte counts (P=0.036) and albumin counts (P=0.002). Regression analysis also displayed that diabetes, a higher level of D-dimer on admission, and lymphocyte counts less than $0.6*10^9$/L at admission were associated with increased odds of death. Use of antidiabetic drugs reduced the odds of death. Having diabetes seemed to increase the risk of death in patients with COVID-19 pneumonia as was shown by the significant differences in mortality found between patients with diabetes and without diabetes (P=0.036), where 11 of the 76 patients with COVID-19 died (14.5%), while only 7 of the 123 patients with COVID-19 without diabetes died (5.7%).[3]

Similarly, albeit on a population level, a study was carried out in England among 23698 in-hospital COVID-19 related deaths during the period from March 1 and May 11, 2020. It revealed that over 30% of COVID-19 related deaths occurred in patients with diabetes. After adjustment for several factors, compared with people without diabetes, Odds Ratios (ORs) for in-hospital COVID-19 related deaths were 3.51 (95% CI: 3.16-3.90) in people with type 1 diabetes and 2.03 (95% CI: 1.97-2.09) in people with type 2 diabetes. This study showed that diabetes was independently associated with significantly increased odds of in-hospital deaths with COVID-19.[4]

A systematic review and meta-analysis were done via systematic literature search from several electronic databases on subjects including DM and outcome in COVID-19 pneumonia. A total of 6452 patients from 30 studies were included. Resulting meta-analysis showed that DM was associated with composite poor outcomes including severe COVID-19 infection, ARDS and faster disease progression.[5] Similar results were shown in other systematic reviews as well.[6]

This leads us to the importance of following the often-repetitive yet incredibly valuable instructions given by health officials on following standard precautions to avoid the COVID-19 infection such as frequent hand washing and covering coughs and sneezes with a tissue or your elbow, not visiting family and friends who are sick, staying at least a 1-meter apart from other people when outside the house, minimizing going to places with large crowds and wearing a face mask for protection when heading to crowded areas.

Paying attention to potential COVID-19 symptoms such as fever, dry cough and shortness of breath is especially important in diabetic patients. If possible, keeping glucose read-

ings available, keeping track of your fluid consumption and being clear on your symptoms are also useful. Healthy family members of the household (who have diabetic patients in their home) should conduct themselves in a manner as if they were a significant risk to the family member who has diabetes. Remembering to wash hands before feeding or caring for them, keeping a protected space for the vulnerable household members and cleaning utensils and surfaces regularly should be a priority. If possible, it is better to consider having only one family member to care for a sick household member having diabetes during this period.[7-8]

Other important advice include planning for essentials like food and water, ensuring adequate stocks of your medications are on hand, being physically active every day, having cleaning supplies in your home (soap, disinfectants, hand sanitizes), and keeping their diabetes under control along with easy to take carbohydrates in case you need to bring up your blood sugars (e.g. juice, biscuits). Having emergency contacts and a doctor's phone number handy will also be helpful.[7-8]

It is also imperative that health services should not be hampered to the more vulnerable patients such as people with diabetes and that continued, unimpeded access to their medications and/or insulin injections be present. There is currently no evidence that any medications need to be stopped if you develop COVID-19.

Answers do not come easy to the coronavirus pandemic; however, for people with diabetes, it is becoming progressively difficult to untangle from the biological and socioeconomic factors that make them more at risk of suffering severe illness with an increased chance of mortality, should they catch the COVID-19 virus.

Therefore, that leaves prevention as the foremost tactic to protect people with diabetes, until a successful vaccine reaches our populace with its multiple burdens of chronic illness.

Adapted from the following references:

https://www.webmd.com/lung/coronavirus-complications#1
WHO (2020). COVID-19 and NCDS.
Li, G., Deng, Q., Feng, J. et al (2020). Clinical characteristics of diabetic patients with COVID-19. *Hindawi, Journal of Diabetes Research,* vol 2020, article ID 1652403. https://doi.org/10.1155/2020/1652403
Barron, E., Bakhai, C., Kar, P., et al (2020). Associations of type 1 and type 2 diabetes with COVID-190 related mortality in England: a whole-population study. *Lancet Diabetes Endocrinol,* 8: 813-22.
Huang, I., Lim, M. A., Pranata, R. (2020). Diabetes mellitus is associated with increased mortality and severity of disease in COVID-19 pneumonia – A systematic review, meta-analysis, and meta-regression. *Diabetes and Metabolic Syndrome: Clinical Research and Review,* 14, 395-403. https://doi.org/10.1016/j.dsx.2020.04.018.
Abdi, A., Jalilian, M., Sarbarzeh, P.A. et al (2020). Diabetes and COVID-19: A systematic review on the current evidences. *Diabetes Research and Clinical Practice,* 166, 108347. https://doi.org/10.1016/j.diabres.2020.108347
www.paho.org/coronavirus
https://www.idf.org/aboutdiabetes/what-is-diabetes/covid-19-and-diabetes/1-covid-19-and-diabetes.html

Compiled By :

Dr. Dhivya A. Nathaniel
Trainee in MSc Community Medicine
Epidemiology Unit – Ministry of Health

Table 1: Selected notifiable diseases reported by Medical Officers of Health   29th– 04th Sep 2020 (36th Week)

RDHS Division	Dengue Fever		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Chickenpox		Meningitis		Leishmaniasis		WRCD	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**
Colombo	54	3817	2	27	0	9	0	6	0	16	14	260	0	2	0	3	0	0	2	192	0	38	0	2	56	100
Gampaha	39	2367	0	12	0	7	0	7	0	19	11	205	0	7	0	6	0	1	5	246	1	29	0	60	41	99
Kalutara	18	1611	1	13	0	6	0	6	0	6	42	584	0	14	0	6	0	1	5	267	0	37	0	0	51	98
Kandy	64	2858	2	25	0	1	0	9	1	14	3	182	5	94	0	4	0	0	1	149	0	23	0	57	63	100
Matale	4	546	0	8	0	4	0	5	0	6	1	91	0	6	0	7	0	1	2	55	0	5	7	255	63	100
NuwaraEliya	2	160	2	33	0	1	0	4	0	9	1	101	1	79	0	3	0	0	2	72	1	13	0	0	22	100
Galle	13	1555	0	32	0	18	0	4	12	26	19	574	1	52	1	4	0	0	3	291	2	53	0	4	32	99
Hambantota	3	334	1	12	0	4	0	2	0	48	2	191	1	57	0	4	0	1	2	168	2	45	6	558	69	100
Matara	3	481	0	25	2	17	0	1	0	3	14	434	2	12	1	11	0	0	3	121	1	21	4	316	18	100
Jaffna	13	2003	3	80	0	0	0	20	0	59	1	21	10	516	0	0	0	2	1	100	1	11	0	2	29	93
Kilinochchi	0	125	0	37	0	2	0	11	0	17	0	19	1	35	0	0	0	0	1	13	0	11	0	13	65	100
Mannar	0	133	0	0	0	0	0	1	0	2	0	6	0	2	0	1	1	1	0	2	0	8	0	0	40	100
Vavuniya	0	248	0	13	0	0	0	6	0	3	0	41	0	2	0	0	0	0	0	29	0	4	0	1	63	100
Mullaitivu	1	85	0	14	0	0	0	6	0	5	0	25	0	11	0	3	0	2	0	12	0	7	0	6	39	100
Batticaloa	14	2331	7	81	0	4	0	1	0	48	0	29	0	29	0	5	0	1	0	84	1	29	0	1	51	100
Ampara	0	307	2	19	0	4	0	0	0	0	2	87	0	0	0	4	0	0	2	115	0	15	0	5	68	100
Trincomalee	2	2277	0	14	0	0	0	0	0	2	1	30	0	9	0	5	0	0	2	93	0	8	0	1	42	99
Kurunegala	5	867	0	21	1	12	0	3	0	36	10	189	1	28	0	5	0	3	1	293	5	35	5	358	47	99
Puttalam	3	455	0	9	0	4	0	3	0	1	0	58	1	16	0	0	0	1	1	74	0	49	0	9	57	100
Anuradhapur	3	397	1	17	0	2	0	4	0	30	3	234	0	23	0	12	0	2	3	174	3	57	5	206	40	99
Polonnaruwa	0	224	0	6	0	0	0	0	0	5	1	121	0	1	1	18	0	1	0	124	0	15	2	219	56	91
Badulla	3	436	1	17	0	5	0	3	0	4	2	300	2	85	0	13	0	0	0	132	0	32	0	18	59	89
Monaragala	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Ratnapura	13	1785	1	81	0	27	0	5	0	35	21	1249	5	46	0	15	0	0	1	164	3	95	2	102	51	100
Kegalle	16	728	0	18	0	10	0	3	0	17	22	410	0	40	6	15	0	0	4	155	1	56	2	30	53	100
Kalmune	7	896	3	51	0	3	0	1	0	6	2	19	0	2	0	3	0	0	1	271	0	36	0	0	64	100
SRILANKA	280	27026	26	665	3	140	0	111	13	417	17	5460	30	1139	9	142	1	17	42	3396	21	732	31	2223	49	95

Source: Weekly Returns of Communicable Diseases (WRCD).

*T=Timeliness refers to returns received on or before 04th Sep, 2020 Total number of reporting units 356 Number of reporting units data provided for the current week: 325 **C****=Completeness

Table 2: Vaccine-Preventable Diseases & AFP   29th– 04th Sep 2020 (36th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2020	Number of cases during same week in 2019	Total number of cases to date in 2020	Total number of cases to date in 2019	Difference between the number of cases to date in 2020 & 2019
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	01	00	00	00	00	00	00	00	01	02	31	56	- 44.6 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	00	01	00	00	01	00	00	00	01	03	06	127	246	- 48.3%
Measles	00	00	00	00	00	00	00	00	01	01	04	39	241	- 83.8 %
Rubella	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
CRS**	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Tetanus	00	00	00	00	00	00	00	00	00	00	01	03	16	- 81.25 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Japanese Encephalitis	00	00	00	00	00	00	00	00	00	00	01	31	11	181.8 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	07	36	- 80.5 %
Tuberculosis	98	28	06	05	04	00	03	06	06	150	175	4341	5674	- 23.4 %

Key to Table 1 & 2

Provinces: **W**: Western, **C**: Central, **S**: Southern, **N**: North, **E**: East, **NC**: North Central, **NW**: North Western, **U**: Uva, **Sab**: Sabaragamuwa.

RDHS Divisions: **CB**: Colombo, **GM**: Gampaha, **KL**: Kalutara, **KD**: Kandy, **ML**: Matale, **NE**: Nuwara Eliya, **GL**: Galle, **HB**: Hambantota, **MT**: Matara, **JF**: Jaffna,
              KN: Killinochchi, **MN**: Mannar, **VA**: Vavuniya, **MU**: Mullaitivu, **BT**: Batticaloa, **AM**: Ampara, **TR**: Trincomalee, **KM**: Kalmunai, **KR**: Kurunegala, **PU**: Puttalam,
              AP: Anuradhapura, **PO**: Polonnaruwa, **BD**: Badulla, **MO**: Moneragala, **RP**: Ratnapura, **KG**: Kegalle.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,

Special Surveillance: AFP* (Acute Flaccid Paralysis), Japanese Encephalitis

CRS **=**Congenital Rubella Syndrome

NA = Not Available

Dengue Prevention and Control Health Messages

Look for plants such as bamboo, bohemia, rampe and banana in your surroundings and maintain them free of water collection.

Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to **chepid@sltnet.lk. Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication**

ON STATE SERVICE

Dr. Sudath Samaraweera
CHIEF EPIDEMIOLOGIST
EPIDEMIOLOGY UNIT
231, DE SARAM PLACE
COLOMBO 10