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Research Article

Covidiab, a Suspected Connection between Diabetes Mellitus and Covid-19 Infection.

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Introduction

There seems to be a bidirectional relationship between diabetes and COVID-19. In fact, diabetes has been reported as one of the most important risk factors of severe COVID-19 and related mortality. On the other hand, emerging evidence suggests a specific impact of COVID-19 on diabetes itself.

Evidence of increased pediatric type 1 diabetes (T1D) has been reported during the COVID-19 pandemic. Various reports of the occurrence of type 1 diabetes mellitus (T1DM) in patients with COVID-19 have been published, therefore, conducted this systematic review to summarize that SARS-CoV-2 infection might induce newly diagnosed diabetes in pediatrics patients.

Objectives and Methods:

A systematic electronic database search was conducted for relevant studies published from inception and till 01/22/2022, were searched for original studies investigating the risk for new diabetes diagnosis after acute infection with SARS-CoV-2 in pediatrics and adolescents.

Results:

New studies from different parts of the world have identified an increase in the incidence of type 1 diabetes in children since the COVID-19 pandemic began, but the reasons still aren't clear. Studies were included in the qualitative analysis. The biggest two studies done in Germany and the United States.

A study from the US Centers for Disease Control and Prevention (CDC) 2022, published findings from their analysis of data from around 1.6 million children, under the age of 18 years.

CDC estimated diabetes incidence among patients aged <18 years with diagnosed COVID-19 from retrospective cohorts constructed using IQVIA health care claims data from March, 2020, through February, 2021, and compared it with incidence among patients matched by age and sex who did not receive a COVID-19 diagnosis during the pandemic, and who received a prepandemic non–COVID-19 acute respiratory infection (ARI) diagnosis.

Diabetes incidence was;

316 per 100,000 person-years in the COVID-19 group,

118 per 100,000 person-years in the pandemic period non–COVID-19 group, 126 per 100,000 person-years in the prepandemic ARI group, and

125 per 100,000 person-years in the prepandemic non-ARI group (Figure).

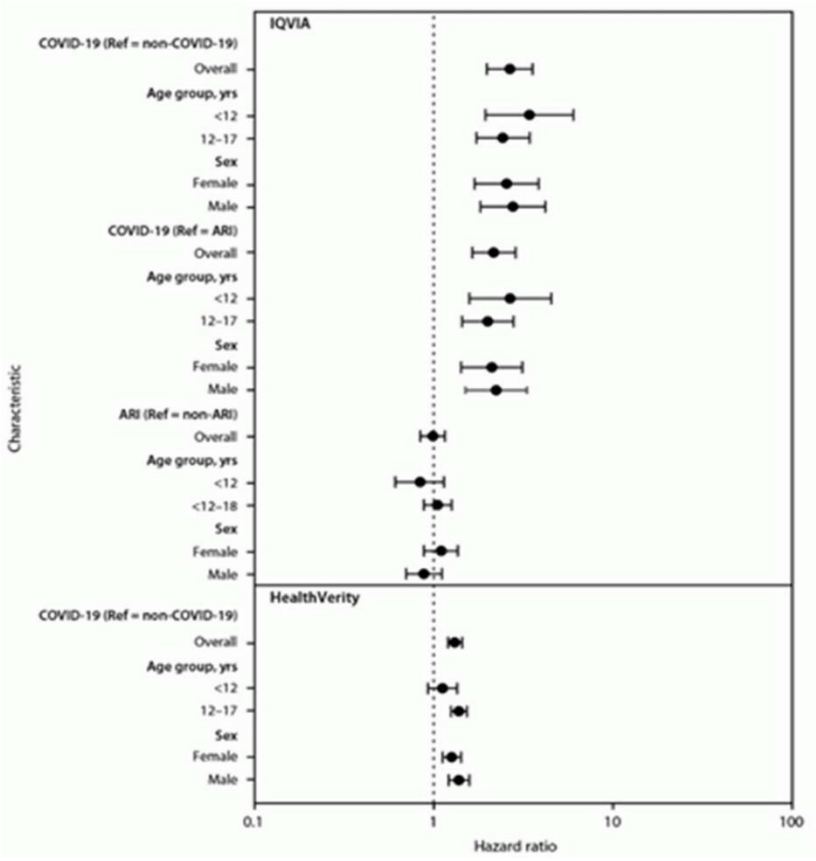

Figure. Hazard ratio for the association between COVID-19 or acute respiratory infection and new diabetes diagnosis among patients aged <18 years, by age group and sex

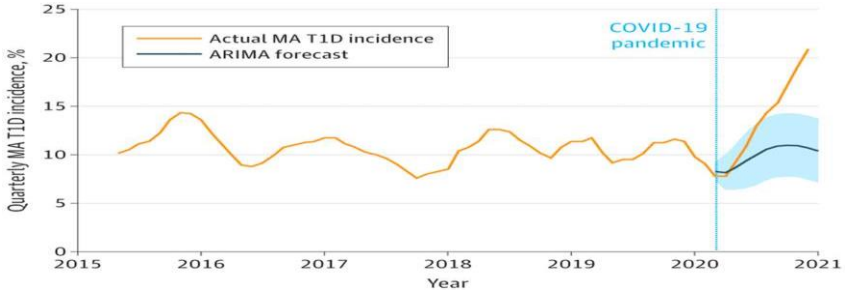

Figure. Autoregressive Integrated Moving Average (ARIMA) Forecast and Quarterly Moving Average (MA)of New Type 1 Diabetes (T1D) Cases

Diabetes risk was 166% higher in the COVID-19 group than in the non-COVID-19 group (HR = 2.66, 95% CI = 1.98–3.56) and 116% higher than in the prepandemic ARI group (HR = 2.16, 95% CI = 1.64–2.86) (Figure).

It found after having coronavirus, children were around 2.5 times (166%) more likely to develop diabetes than children who hadn't been infected.

Another study conducted in German, Using data from the multicenter German Diabetes Prospective Follow-up Registry compared the incidence of type 1 diabetes in children and adolescents from January, 2020 through June, 2021 with the incidence in 2011-2019.During the pandemic period, that incidence,

24.4 per 100,000 patient-years, was significantly higher than the 21.2 per 100,000 patient-years expected based on the prior decade, with an incidence rate ratio of 1.15 (P < .001). (graph1)

Discussions:

New diabetes diagnoses were more likely to occur among patients with COVID-19 than among those without COVID-19 during the pandemic in pediatrics age group, COVID-19 might lead to diabetes through direct attack of pancreatic cells expressing angiotensin converting enzyme 2(ACE-2) receptors, through stress hyperglycemia resulting from the cytokine storm and alterations in glucose metabolism caused by infection, or through precipitation of prediabetes to diabetes (8). Steroid treatment during hospitalization might lead to transient hyperglycemia; Alternatively, COVID-19 might have indirectly increased diabetes risk through pandemic-associated increases in body mass index.

Conclusions:

Based on available evidence, there is increased diabetes risk among persons aged <18 years following COVID-19 occurred many months after infection.

The evidence to suggest a link between coronavirus and new cases of diabetes is growing. But, can't yet be sure if coronavirus is directly causing diabetes, or whether there are other factors that could explain the link

That highlights the importance of COVID-19 prevention strategies in this age group, including vaccination

for all eligible persons.

Monitoring for long-term consequences, including signs of new diabetes, following SARS-CoV-2 infection is important in this age group.

Scientists are working hard to building a database of new cases of diabetes in people with coronavirus, called the “CoviDiab” registry that was established by an international group of diabetes researchers in mid-2020 to gather data on COVID-19–related diabetes.

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