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FOREFRONT CONCEPT ON PEDIATRIC TYPE 2 DIABETES MELLITUS

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ABSTRACT

Prevalence and incidence of type 2 diabetes Mellitus (T2DM) in children has been increased worldwide due to obesity, lack of physical activity, improper diet, and family medical history. Other associated complications such as cardiovascular problems, dyslipidemia, hypertension, nonalcoholic fatty liver disease, pancreatic problems, pulmonary problems, and renal injury are found to attribute the ill-effects of T2DM complication in Pediatric population. Woefully, T2DM and its complications in the Pediatric population remain largely under studied and left untreated at time.

KEYWORDS

Pediatric diabetes, Type 2 diabetes mellitus and Diabetic complications.

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INTRODUCTION

At present, the prevalence of type 2 diabetes Mellitus (T2DM) are reported to be rise in Pediatric population and about 45% of its new cases were estimated^{1,2}.

Observed risk factors for the increase in incidence of T2DM in the Pediatric population were obesity or unhealthy Body Mass Index (BMI)^{2,3}. Childhood obesity is reported a serious health in some developing countries especially, 41.8% of children in Mexico, 22.1% of children in Brazil, 22.0% of children in India, and 19.4% of children in Argentina^{3,4}.

It was also observed that the children who born from diabetic mothers have high risk for this disease as compared to those children who have diabetic father. Even, the risk of T2DM is noticed higher in the baby boys than the baby girls⁵. Nongenomic factors have been coined to play significant role in the increase of T2DM incidences in Pediatric population⁶.

Earlier, as per the clinical survey in Japan, it has been noted that insulin resistance gradually increased with the increase in BMI in children as a significant feature of increased serious complications of T2DM in affected children if they left untreated⁷.

Coronary heart disease is reported a lethal clinical complication in Pediatric T2DM with high density lipoprotein (HDL) and increased insulin resistance⁸. As per the previous study that was conducted in South India, it was come in notice that T2DM was present with retinopathy, micro albuminuria, neuropathy and nephropathy⁹.

Elevated triglycerides and atherosclerosis have been observed as serious cardiovascular complication that occurred in the majority of Japanese Pediatric T2DM patients¹⁰. As well as, hypertension (HTN) is also found to observe in the Pediatric diabetic patients with T2DM than T1DM¹¹. Non-alcoholic Fatty Liver Disease (NAFLD) was also noted with T2DM in Pediatric diabetic population as the most common cause of childhood liver disease like liver-carcinoma and liver cirrhosis with elevated alanine transaminase (ALT) levels and vitamin D deficiency if left untreated^{12,13}.

Pancreatic damage was also observed in children having T2DM due to the rapid increased β -cell dysfunction with peripheral or hepatic insulin sensitivity¹⁴. Poor oxygen uptake was also diagnosed in T2DM Pediatric patients due to decreased lung efficiency with the time especially during sleep¹⁵. Higher risk of renal failure was also clinically observed with T2DM Pediatric patients as increased risk of developing nephropathy and membrano proliferative glomerulonephritis with the time if left untreated or getting poor treatments¹⁶.

CONCLUSION

This brief short-review article can be very useful to understand instantly the number of clinical diabetic complications such as obesity, hypertension, dyslipidemia, NAFLD, pancreatic dysfunction, pulmonary disorder (altered peak oxygen intake, sleep disorders), and renal disorders associated with T2DM in pediatric patients. So, this precise information may be used to promote awareness to approach effective management of T2DM in Pediatric population who are more prone to this disease due to having diabetic family history.

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CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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