SJIF Impact Factor: 5.464

WORLD JOURNAL OF ADVANCE HEALTHCARE RESEARCH

ISSN: 2457-0400
Volume: 4.
Issue: 6.
Page N. 247-249
Year: 2020

Case Report www.wjahr.com

INTERESTING CASES OF DIABETES VERY OLD TYPE 1 DIABETES LIVING LONG LIFE AND VERY YOUNG TYPE 2 DIABETES

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Received date: 13 October 2020 **Revised date:** 03 November 2020 **Accepted date:** 24 November 2020

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CASE 1 - Type 1 diabetes patient living long life

Type 1 diabetes is accompanied by long-term microvascular, neurologic, and macrovascular complications. Although the daily management of type 1 diabetes is burdensome and the spectre of metabolic decompensation ever-present, long-term complications, including retinopathy, nephropathy, neuropathy, and cardiovascular disease, have caused the most morbidity and mortality since the introduction of insulin therapy.[1,2] The prevention and amelioration of these complications have been major goals of recent research.

Although studies in animal models of diabetes[3-5] and epidemiologic studies[6-8] implicate hyperglycemia in the pathogenesis of long-term complications, previous clinical trials have not demonstrated a consistent or convincing beneficial effect of intensive therapy on them.[9-11]

A publication from the Stockholm Diabetes Intervention Study demonstrated a more uniform beneficial effect of intensive therapy in patients with established complications, despite the apparent crossover of most conventionally treated patients to intensive therapy during the trial.[12]

The Diabetes Control and Complications Trial (DCCT)[13] is a landmark multicenter trial designed to test the proposition that the complications of diabetes mellitus are related to elevation of the plasma glucose concentration. The study design was simple. Two groups of patients were followed long term, one treated conventionally (goal: clinical well-being; called the standard treatment group) and another treated intensively (goal: normalization of blood glucose; called the intensive treatment group). The intensive treatment group was clearly distinguished from the standard treatment group in terms of glycated hemoglobin levels and capillary blood glucose values throughout the duration of the study. Normalization of glucose values was not achieved in the intensively treated cohort as a group because mean glucose values were ~40% above normal limits. Nonetheless, over the study period, which averaged 7 years, there was a ~60% reduction in risk between the intensive treatment group and the standard treatment group in diabetic retinopathy, nephropathy, and neuropathy. The benefit of intensive therapy resulted in a delay in the onset and a major slowing of the progression of these three complications. Finally, the benefits of intensive therapy were seen in all categories of subjects regardless of age, sex, or duration of diabetes.

70 years old Type 1 diabetes has been discussed in this present case discussion.

CASE DISCUSSION

The patient CSR aged 70 years was diagnosed as diabetes at the age of 24 years in November 1969, his BMI was 28, waist circumference 108 cms. In the first instance he was diagnosed as type 2 diabetes and started on oral hypoglycaemic agents. He did not respond to oral drugs. So the fasting c-peptide was done and it was <0.1 nano gms/ml. So OHA stopped and insulin started. Now he is being treated with the following-

Regular Human insulin 32-30-30, Human insulin intermediate acting 30-0-25, Losartan 50mg 1-0-1, Atorvastatin 10 mg 0-0-1 and Low dose aspirin 75mg 0-0-1.

The duration of diabetes was 46 years. His HBA1c varied between 7.5 to 8%. Recently we did fasting and stimulated c-peptide levels and found to be <.010 nano gram/ml. Anti GAD antibody 4.1 IU/ML.
He is taking regular treatment and the compliance is very good.
Diagnosis-Type 1 diabetes.

Target Organ Damage Evaluation
Coronary angiography - normal coronaries.
Moderate non proliferative diabetic retinopathy.
Urine microalbuminuria-3.4mg/gm.
Moderate neuropathy.

CONCLUSION
This case illustrates that adequate glycemic control with regular insulin even type 1 diabetics can also live long life like normal persons.

CASE 2 -Type 2 diabetes at very young age of 12 years
Until recently, type 2 diabetes was typically regarded as a disease of the middle-aged and elderly. While it still is true that this age-group maintains a higher risk than younger adults, evidence is accumulating that onset in those aged under 30 years is increasingly common. Even children and adolescents are now becoming caught up in the diabetes epidemic. Although type1 diabetes remains the main form of the disease in children worldwide, it is likely that type 2 diabetes will be the predominant form within 10 years in many ethnic groups. Type 2 diabetes has already been reported in children in a number of countries, including Japan, the U.S., India, Australia, and the U.K.[14,15,16,17,18)]

This new phenomenon brings a serious new aspect to the global diabetes epidemic and heralds an emerging public health problem of major proportions. Among children in Japan, type 2 diabetes is already more common than type 1 and accounts for 80% of childhood diabetes. The rising prevalence of obesity and type 2 diabetes in children is yet another symptom of the effects of sedentary lifestyles as part of globalization and industrialization affecting all societies.[19]

This fall in the age of onset of type 2 diabetes is an important factor influencing the future burden of the disease and was part of the stimulus for the IDF to organize the workshop. Onset of diabetes in childhood or adolescence heralds many years of disease and an increased risk that the full range of both micro- and macro vascular complications will occur when affected individuals are still relatively young. Thus, future generations may be burdened with morbidity and mortality at the height of their productivity, potentially affecting the workforce and health care systems of countries across the world.[19]

There are ever increasing reports of type 2 diabetes in children worldwide, with some as young as 8 years old being affected.[20] These are mostly in ethnic groups with a high susceptibility to type2 diabetes. However, there are now also reports of type 2 diabetes occurring among Europid (white Caucasoid) teenagers.[17] In Japan, the prevalence of type 2 diabetes among junior high school children has doubled from 7.3 per 100,000 between 1976 and 1980 to 13.9 per 100,000 in 1991–1995, with type 2 diabetes now outnumbering type 1 diabetes in that country. Recent studies from the U.S. indicate that between 8 and 45% of recently diagnosed diabetes in the young is due to type2 diabetes.[21] Despite the large increase, the prevalence is still, fortunately, much lower than in the adult population.

Young type 2 diabetes aged 12 years is being discussed in this case discussion. The female child named RAK aged 12 years came with fasting plasma glucose 261 mg/dl and post prandial plasma glucose 585 mg/dl. Mother is suffering from type 2 diabetes. BMI was 30. Her reports are
Fasting c-peptide-1.75 nano gm/ml,
stimulated c-peptide 5.47 nano gm /ml,
GAD antibody 6 IU/ml,
TSH 13.65 iu/ml.

The diagnosis of type 2 diabetes and hypothyroidism was made. She was started on metformin 250 mg bid, thyroxine 25 micro gram and insulin as the blood sugar was very high. Initially she was on premix insulin 10-0-6 and after one week her FPG was 148mg/dl and PPPG 338mg/dl, so premix insulin was increased to 16-0-10 and metformin 500mg bid.

After one month her FPG was 125mg/dl and PPPG 170 mg/dl. The insulin was tapered slowly and than stopped and glimepride was started. She was on glimepride 1mg bid and metformin 500 mg bid and after one month her was FPG 105mg/dl, PPPG 127 mg/dl and HBA1c 6.7%.

Case 3 - Type 2 diabetes at young age of 17 years
A boy aged 17 years came with fasting plasma glucose 311 mg/dl, post prandial plasma glucose 377 mg/dl and HBA1c 11.5%. Father was suffering from type 2 diabetes. BMI was 28. His fasting C peptide was 5.99 nano gram and post prandial C-peptide was 8.33 nano gram/ml. The normal range for fasting blood C-peptide levels is around 0.8 -3.85 nanogm/mL. Blood levels will increase after a meal to about 3 - 9 nanogm/mL in healthy people. This measurement is referred to as postprandial C-peptide. This patient has severe insulin resistance. He had ketosis at diagnosis and was treated with insulin. Later he was treated with metfomin and glimepride. After 3 months his fasting plasma glucose was 80 mg/dl, post prandial plasma glucose 120 mg/dl and HBA1c 7%.

CONCLUSION
Type 2 diabetes is becoming common in younger age group in India so it is necessary to consider diagnosis of type 2 daibetes in children. Once the diagnosis of type 2 diabetes is made, life style measures should be given utmost importance. Children should be educated to avoid fast foods like pizza, sandwich, soft drinks etc and to eat more vegetables and fruits. Children should be encouraged to play outdoor games rather than sitting in front of television and computers.

REFERENCES

1. National Diabetes Data Group. Diabetes in America: diabetes data compiled 1984. Bethesda, Md.: National Institutes of Health, 1985. (NIH publication no. 85-1468.)
2. Deckert T, Poulsen JE, Larsen M. Prognosis of diabetics with diabetes onset before the age of thirty-one. Diabetologia, 1978; 14: 363-377.
3. Engerman R, Bloodworth JM Jr, Nelson S. Relationship of microvascular disease in diabetes to metabolic control. Diabetes, 1977; 26: 760-769.
4. Engerman RL, Kern TS. Progression of incipient diabetic retinopathy during good glycemic control. Diabetes, 1987; 36: 808-812.
5. Cohen AJ, McGill PD, Rossetti RG, Guberski DL, Like AA. Glomerulopathy in spontaneously diabetic rat: impact of glycemic control. Diabetes, 1987; 36: 944-951.
6. Klein R, Klein BE, Moss SE, Davis MD, DeMets DL. The Wisconsin epidemiologic study of diabetic retinopathy. II. Prevalence and risk of diabetic retinopathy when age at diagnosis is less than 30 years. Arch Ophthalmol, 1984; 102: 520-526.
7. Klein R, Klein BE, Moss SE, Davis MD, DeMets DL. Glycosylated hemoglobin predicts the incidence and progression of diabetic retinopathy. JAMA, 1988; 260: 2864-2871.
8. Chase HP, Jackson WE, Hoops SL, Cockerham RS, Archer PG, O'Brien D. Glucose control and the renal and retinal complications of insulin-dependent diabetes. JAMA, 1989; 261: 1155-1160.
9. Kroc Collaborative Study Group. Blood glucose control and the evolution of diabetic retinopathy and albuminuria: a preliminary multicenter trial. N Engl J Med, 1984; 311: 365-372.
10. Lauritzen T, Frost-Larsen K, Larsen H-W,Deckert T. Two-year experience with continuous subcutaneous insulin infusion in relation to retinopathy and neuropathy. Diabetes, 1985; 34:Suppl: 74-79.
11. Brinchmann-Hansen O, Dahl-Jorgensen K, Hanssen KF, Sandvik L. The response of diabetic retinopathy to 41 months of multiple insulin injections, insulin pumps, and conventional insulin therapy. Arch Ophthalmol, 1988; 106: 1242-1246.
12. Reichard P, Nilsson B-Y, Rosenqvist U. The effect of long-term intensified insulin treatment on the development of microvascular complications of diabetes mellitus. N Engl J Med, 1993; 329: 304-309.
13. Implications of the Diabetes Control and Complications Trial diabetes care January 2002.
14. Kitagawa T, Owada M, Urakami T, Yamanchi K: Increased incidence of non-insulin dependent diabetes mellitus among Japanese school children correlates with an increased intake of animal protein and fat. Clin Pediatr, 1998; 37: 111–116.
15. Dabelea D, Hanson RL, Bennett PH, Roumain J, Knowler WC, Pettitt DJ: Increasing prevalence of type II diabetes in American Indian children. Diabetologia, 41: 904–910.
16. Braun B, Zimmerman M, Kretchmer N, Spargo R, Smith R, Gracey M: Risk factors for diabetes and cardiovascular disease in young Australian Aborigines. Diabetes Care, 1996; 19: 472–479.
17. Drake AJ, Smith A, Betts PR, Crowne EC, Shield JP: Type 2 diabetes in obese white children. Arch Dis Child, 2002; 86: 207–208.
18. Ramachandran A, Snehalatha C, Satyavani K, Sivasankari S, Vijay V: Type 2 diabetes in Asian-Indian urban children. Diabetes Care, 2003; 26: 1022–1025.
19. Type 2 Diabetes in the Young: The Evolving Epidemic The International Diabetes Federation Consensus Workshop George Alberti, FRCP, PHD, Paul Zimmet, FRACP, PHD,Jonathan Shaw, FRACP, MD, Zachary Bloomgarden, MD,Francine Kaufman, MD, Martin Silink, FRACP, MD and for the Consensus Workshop Group Diabetes Care, July 2004; 27(7): 1798-1811.
20. Pihoker C, Scott CR, Lensing SY, Cradock MM, Smith J: Non-insulin dependent diabetes mellitus in African-American youths of Arkansas. Clin Pediatr (Phila), 1998; 37: 97–102.
21. American Diabetes Association: Type 2 diabetes in children and adolescents. Diabetes Care, 2000; 23*:* 381–389.