DyAnsys MEASURE

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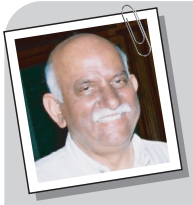
When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind.

- Lord Kelvin (1883)

Director's corner



Greetings!

Diabetes can strike anyone, anywhere, anytime! It has no partisan inclinations. The treatment of diabetes comes at a premium and the financial strain on those affected can be onerous and often pitiless. The New York Times, in their September (2006) issue published an article that emphasized on this aspect. The article also gave Chennai in India specific attention. The following link gives access to the above mentioned feature.

http://www.nytimes.com/2006/09/13/world/asia/13diabetes.html?pagewanted=all&_r=0

The article carried an amusing and yet thought-provoking piece of information.

"A particular profession in India, they heard, a well-paying one involving a lot of standing around, had practitioners who did not necessarily heed their own advice. The profession was thick with diabetes".

Yes, it was doctors themselves!!!

Dr. Robert Bonakdar, the new President of the American Academy of Pain Management, took on a presidential project in September, 2012. He made self-care mandatory for members - a much-needed and refreshing move! Innovative and revolutionary programs were introduced by the AAPM to create awareness and help members to take care of themselves. During his talk, Dr. Bonakdar, stressed on the fact that healthy doctors had an upper hand and were more successful in treating patients in comparison to unhealthy doctors.

Counter-balancing an affluent lifestyle and prevention of diabetes can be a colossal challenge in an economically emergent country like India. In the accompanying case study, Dr. Paneerselvam discusses a program to reverse all things connected to diabetes and even more the complications that can arise from it. His patients have tremendously benefited from his treatment and care. It is an honor for the DyAnsys family to have Dr. Paneerselvam amidst us to share his experiences.

(Contd.)

Everything is reversible in Type- 2 Diabetes

Pro Profile

The Chengalpattu Madras Medical College Alumni honoured acclaimed diabetologist, Dr. A Paneerselvam with the Lifetime Achievement Award in August 2007. He received his D. Diab form the Madras Medical College in 1989. For over a decade, Dr. Paneerselvam has been an Asst. Prof of Diabetology at the Kilpauk Medical College. A pioneer in the field, he has assumed many roles of responsibility and holds positions of honour in numerous Associations. Innumerable awards stand testimony to his incessant and tireless service to humanity. The Government of Tamil Nadu conferred on him the 'Best Doctor' award in the year 1997 for his meritorious service. The Lions Club of Central Madras bestowed on Dr. Paneerselvam the prestigious LION DR.C.V. ANANTHASAYANAM MEMORIAL AWARD" on 29th February, 2012 for his continual effort in organizing camps on diabetes, educating the public and creating awareness among them for over thirty years. He has so far conducted more than 300 such camps in cooperation with Lions Clubs Exnora, Pharmaceutical Companies and other Voluntary Organizations in the city of Chennai and other parts of Tamil Nadu. A well-known and successful physician, Dr. Paneerselvam is also a keen academician. He has been associated with several National and International Conferences. The IDF at Paris and Cape Town, Conferences at Bangkok (Thailand), Genting Highlands (Malaysia), Dubai, Singapore, the EASD at Copenhagen, Shanghai, Bali, Turkey, Spain and Italy, the Pre-Diabetes International Conference in France, ADA in San Francisco and San Diego, to name a few.

At present he is the Chairman for Lion KRS Insulin Bank for Juvenile Diabetics, Project Coordinator for World Diabetes Foundation (WDF) & Gestational Diabetes Mellitus Project, Tamil Nadu and the President for Choolaimedu Civic Exnora and Diabetes Exnora.

Doc Talk

TYPE2 DIABETES

Diabetes is a disease in which blood glucose levels are above normal. People affected with diabetes face a hurdle in the conversion of food into energy. After each meal, food is broken down into a sugar called glucose, which is in turn carried by the blood to cells throughout the body. Cells use the hormone insulin, made in the pancreas, to help them process blood glucose into energy.

People develop Type 2 diabetes because the cells in the muscles, liver, and fat do not use insulin properly. Eventually, the pancreas cannot make enough insulin for the body's needs. In Type-1 diabetes there is no insulin. As a result, the amount of glucose in the blood increases while the cells are starved of energy. Over the years, high blood glucose damages nerves and blood vessels, leading to complications such as heart disease, stroke, blindness, kidney disease, nerve problems, gum infections, and amputation etc.

What Causes Type2 Diabetes?

Type 2diabetes is more prevalent among those people who have a comparatively low level of physical activity and who may be obese or over weight. This is probably why diabetes is often called a 'lifestyle disease'. Type2 diabetes is the most common form of diabetes and it affects 85 to 90 per cent of all diabetics. However, owing to obesity and weight issues even the younger generation is not being spared. There is a drastic increase in the number of youngsters being diagnosed with diabetes. Type 2 diabetes used to be called non-insulin dependent diabetes or mature onset diabetes. The causes for Type 2 diabetes are known and in some cases it can be prevented. Unfortunately there is no cure for Type 2 diabetes. Type 2 diabetes can be easy to ignore, especially in the early stages when you're feeling fine. Controlling your blood sugar levels can help prevent these complications. Although long-term complications of diabetes develop gradually, they can eventually be disabling or even life-threatening. Risk factors for Type 2 diabetes include being Overweight, Inactivity, Family History of Diabetes or Gestational Diabetes and Metabolic Syndrome Pre diabetes.

How Can We Avoid Type2 Diabetes?

Type 2 can be controlled as well as treated with lifestyle modifications (exercise, weight reduction, and healthier nutrition, among other efforts), or in combination with medication. It may even be prevented if identified during the early warning phase known as Pre Diabetes. Even though glucose levels can get back to a "normal" range, it doesn't mean the person is cured and their condition is reversed. What it does mean is that their diabetes is being managed and they are taking good care of themselves. Intensive control of blood glucose and keeping glycosylated haemoglobin (HbA1c) levels below 7%. Tight blood glucose and HbA1c control can help

It is a general misconception that controlling HbA1c will help control everything associated with diabetes. We published a poster showing the non-correlation between autonomic dysfunction and HbA1C measurements. A longitudinal study was done on 100 patients. The result of this study can be read on,

http://dyansys.com/pdf/Neuropathy-assessment.pdf

This poster was presented at the IDF Conference at Cape Town in 2006.

Giving significant consideration to Dr. Paneerselvam's advice in the following case study would hold the physicians, patients and the rest of us in good stead.

Wishing everyone good health and a diabetes-free life!

prevent complications that arise due to vascular (blood vessel) abnormalities and nerve damage (neuropathy) that causes major damage to organs, including the eyes, kidneys, and possibly the heart.

ANSiscope- A Perfect Diagnostic Device

In spite of so much of advancement in the prevention of Type-2 diabetes and maintaining good control after detection millions of diabetics are still facing complications due to diabetes. Until and unless strong steps are taken to prevent Type-2 diabetes and promulgate the importance of maintaining good control it is extremely difficult to deal with the complications. One among the many complications of diabetes is Cardiac Autonomic Neuropathy. (CAN). An effective tool that could help in the proper identification of cardiac autonomic neuropathy was not available around ten years back. Either through ECG or by counting the heart rate, we came to the conclusion of fixed Tachycardia or Resting tachycardia, postural hypotension, Valsalva manoeuvre etc. Now the Dyansys ANSiscope helps to identify the early parasympathetic denervation and sympathetic over activity by a simple graph with which clinicians can detect the early onset of cardiac autonomic neuropathy. Before this discovery detection was not possible Despite early identification or even establishing CAN, the good control, that is, maintaining A1c always <7% for years together, CAN could revert. Hence this equipment is exceptionally useful in the diagnosis of CAN and to monitor further improvement or worsening of the complications. If CAN is > 60% there is simultaneous involvement of other organs in creating complications. Good control and maintenance of the same not only reverses CAN but also improves asymmetric sweating, motor and sensory neuropathy at the feet, erectile dysfunction and gastric motility etc.

Complications Related to Diabetes

Consistently high blood sugar existing over a period of time can affect the heart, eyes, kidneys, nerves, and other parts of the body. These problems are called complications. Most often people do not realize that they have been afflicted with diabetes until they experience some form of distress. For example, a doctor or health care provider may detect signs of diabetes damage even though the patient is ignorant about it. If your diabetes is left untreated, it can lead to different health problems. Large amounts of glucose can damage blood vessels, nerves and organs. Even a mildly raised glucose level that does not cause any symptoms can have damaging effects in the long term.

Manifestations of Type 2 Diabetes

Usually the evidence of certain symptoms helps in diagnosis. However, Type2 diabetes comes with no such indications. In this case, people can live for months, even years, without knowing they have the disease. The advancement of this type of diabetes is so gradual that symptoms may not even be recognized. About half of those who have Type 2 diabetes have not yet been diagnosed. Even if symptoms are present, they are often not recognised or are attributed to other reasons such as being busy or 'getting older'. In many cases blood glucose levels can be very high by the time symptoms are noticed and medical treatment is sought. Common symptoms include:

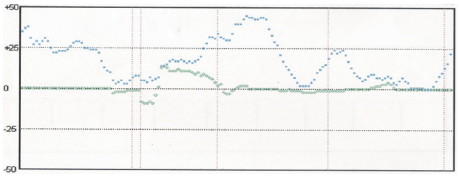
Being more thirsty than usual
Passing more urine
Feeling tired and lethargic
Slow-healing wounds
Itching and skin infections
Blurred vision

The first symptoms that some people experience may be those that arise from the complications of the disease, such as blurry vision or foot pain. Not everyone with type 2 diabetes has symptoms in the early stages.

Case History

Our case report involves a 40 year old female patient who was referred to our centre in April 2011. The patient had been a diabetic for over a decade. On evaluation, she was found to have the following clinical parameters. Urea: 30mg, Creatinine: 0.8mg, Urine for Micro Albumin (UMA): 21mg, HbA1c: 8.1, Vibration perception (VPT): 15 Volts and DAN: 57% (Advanced).

Figure: 1 shows the ANSiscope report, indicating an advanced stage of dysautonomia with full decoupling between the two subsystems of the autonomic nervous system (ANS).

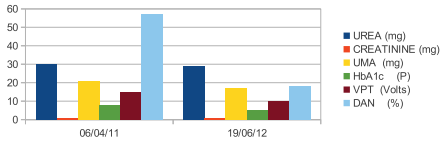


Follow-Up: 2012

A reassessment of autonomic dysfunction using ANSiscope on June '2012, a year after the good control showed that the patient was in 18 % of DAN. Functional observations from the reassessment indicated that the patient had recovered from the progressive state of autonomic neuropathy. We were able to observe the initial reversal stage of Diabetic Autonomic Neuropathy. After the first follow-up the clinical parameters were as follows: Urea: 29mg, Creatinine: 0.6mg, Urine for Micro Albumin (UMA): 17mg, HbA1c: 5.1, Vibration perception (VPT): 10 Volts and DAN: 18% (Early).

Figure: 2 shows the ANSitest report indicating an amazing reversal to a healthy state of Autonomic interaction, including satisfactory sympathetic and parasympathetic reactivity.

DATE	06:04:2011	19:06:2012
UREA (mg)	30	29
CREATININE (mg)	0.8	0.6
UMA (mg)	21	17
HbA1c (P)	8.1	5.1
VPT (Volts)	15	10
DAN (%)	57	18



From this it is obvious that the ANSiscope is not only the most effective tool used to detect Diabetic Autonomic Neuropathy but also stands out as a new and unique test to identify the presence of complications that is a result of Type 2 diabetes.

Literature review

Renal Disorder and Type2 Diabetes

Ismail-Beigi F et al [2012, Issue of Pub Med - indexed for MEDLINE] stated that aggressive glycemic control has been hypothesized to prevent renal disease in patients with Type 2 diabetes mellitus. A systematic review was conducted to summarize the benefits of intensive versus conventional glucose control on kidney-related outcomes for adults with Type 2 diabetes. Three databases were systematically searched (January 1, 1950, to December 31, 2010) with no language restrictions to identify randomized trials that compared surrogate renal end points (micro albuminuria and macro albuminuria) and clinical renal end points (doubling of the serum creatinine level, end-stage renal disease [ESRD], and death from renal disease) in patients with Type 2 diabetes receiving intensive glucose control versus those receiving conventional glucose control. He evaluated 7 trials involving 28, 065 adults who were monitored for 2 to 15 years. Compared with conventional control, intensive glucose control reduced the risk for micro albuminuria (risk ratio, 0.86 [95% CI, 0.76-0.96]) and macro albuminuria (0.74 [0.65-0.85]), but not doubling of the serum creatinine level (1.06 [0.92-1.22]), ESRD (0.69 [0.46-1.05]), or death from renal disease (0.99 [0.55-1.79]). Meta-regression revealed that larger differences in haemoglobin A1C between intensive and conventional therapy at the study level were associated with greater benefits for both micro albuminuria and macro albuminuria. The pooled cumulative incidence of doubling of the serum creatinine level, ESRD, and death from renal disease was low (< 4%, < 1.5%, and < 0.5%, respectively) compared with the surrogate renal end points of micro albuminuria (23%) and macro albuminuria (5%). Intensive glucose control reduces the risk for micro albuminuria and macro albuminuria, but evidence is lacking for the fact that intensive glycemic control reduces the risk for significant clinical renal outcomes, such as doubling of the serum creatinine level, ESRD, or death from renal disease during the years of follow-up of the trials.

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