



DIFFICULTIES IN DIABETES REVERSAL

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KEYWORDS :

INTRODUCTION:-

As of today the life style disorders are more prevalent than any other pandemic even corona. Even in patients of corona, metabolic health is a major determinant of patient outcome. Now a days there are many research studies claiming reversal of type 2 diabetes and other components of metabolic syndrome like hypertension, obesity and related disorders. The modalities for metabolic syndrome reversal can be broadly classified as follows

- Low calorie diet
- Low carb diet
- Bariatric surgery

I am convinced enough that -

1. Diabetes type 2 is a dietary / life style disorder.
2. All diabetics - type 2 are potentially fully reversible.
3. Giving drugs / insulin may reduce the

Blood glucose but will worsen the underlying disease.

I have verified the same with my own clinical experience and recent research publications across the globe.

Then the obvious questions which comes to my mind -

1. Why other doctors are not following the same modality to improve the health of their patients?
2. Why some of the doctors are advising against my advice of low carb diet?
3. Why some of the patients find it difficult to follow the given advice even when it is helping them?

- Fourth learning station - Don't forget there is a forth station too - MR - Medical Representative. Occasionally it is termed differently like field executive, field officer, etc. Many a times this turns out to be the most important / effective modality for doctor's knowledge. He (MR) overpowers all previous modalities and becomes the only determinant of doctor's knowledge. He ensures that

DR (doctor) = Drug Representative.

In today's world he is the last port in the medical knowledge distribution system. What he is trained and appointed for? - To convince, confuse, push, pursue, motivate, compel, oblige, remind, reinforce the Doctor = Drug Representative.

"Pill for the ill and ill for the pill."

What about the medical research itself - base of the evidence?

The research in the field of nutrition and lifestyle disorder has certain limitations as follows -

1. Lots of the research work / experiments are done with laboratory animals and extrapolated for humans. Many times it may not hold true.
2. The human experiments in controlled lab conditions are of short term nature. In real life, human physiology may show adaptations like resistance, tolerance as a time dependent phenomenon.

3. There are ethical considerations in human experiments (especially in long term studies) which cannot be overlooked.
4. Lot of research work is epidemiological in nature. The conclusions are out of correlation and not causation in many cases.
5. Many studies quoted are observational in nature and obviously rank lower in reliability.
6. In case of long term intervention studies in humans, the conditions cannot be controlled properly on long term basis.
7. In case of research in nutrition, there is lot of personal bias in work and interpretation of the results. Most famous Seven Country study is a classic example of all of these loopholes.
8. Research funding bias - Many research projects and trials are funded by the food and drug multinational companies. The company usually decides the research topic and the researcher. Obviously the company will protect its own commercial interests. The company will not provide funding for a research which does not protect its commercial interests. The findings of the research work may also be manipulated in favor of the company.
9. Publication bias - Many a times the research with unfavorable drug outcome is not published in the journals. Obviously most published studies claim favorable outcome with drugs. The Pharma and Food corporates are big players in the field of research - Let me quote certain authorities -

John A Ioannidis (researcher and editor) et al mentions -

- Much published research is not reliable. Offers no benefit to patients, or is not useful to decision makers.
- Most health-care professionals are not aware of this problem.

Many researchers and editors of the prestigious journals have already acknowledged this fact clearly.

As said by noted scientist Stephen Hawking -

"The greatest enemy of knowledge is not ignorance, it is the illusion of knowledge".

Doctor's training and teaching - **First learning station** - Most of the doctors, Medical professionals must have noticed that while in medical college very little attention is given to important aspect of health, that is nutrition and life style aspects. To my knowledge there are about 10 lectures for nutrition in complete undergraduate / postgraduate medical education. The main topics included are vitamins and minerals. The other significant inclusion is fat in relation to heart diseases. Only advice emphasized is to avoid fats and reduce calories. The limited focus is from the calorie perspective and not hormones. There is hardly anything taught about importance of exercise, sleep and stress. What I think, possibly the medical book writers and teachers must have assumed that, these issues related to lifestyle are simple

and easy to understand for the intelligent students of medical colleges and thus need not be discussed.

On the contrary most of the time the focus is
On the use of drugs /pharmacotherapy -
Which drug to use?
Which drug is better? ,
When to use the drugs?
When to combine the drugs?
How much drug doses to use? ,
What are the drug side effects? ,
How to treat drug side effects? ,
Which drug is of newer generation? ,

On and on - but to use the drugs and drugs and drugs..... In short we as doctors are groomed to be a disease managers and not health care professionals. At the end of the medical education the doctors tend to find answer of every patient's complaint in the form of a pill.

"Pill for every ill".

The doctors feel proud if he knows everything about the drugs.

The concept of health as an important entity and a very basic responsibility of the doctor is mostly neglected by the existing system of medical education as a whole. So rather than promoting health, the doctors develop the mind setup of treating everything with drugs. Ultimately many doctors even fail to protect and manage their own health. Unfortunately they also believe in drugs as the only solution to their own personal health problems. I was also thinking and doing the same way. I must confess that I treated my own diabetes (type 2) in a very conventional way for 16 long years. (And failed).

Many lifestyle disorders are becoming increasingly common over last few decades. Some other diseases do have lifestyle as an important contributor in the disease course. In medical education these life style disorders are termed as multifactorial in nature. They are termed as idiopathic - cause is not known. The main culprit mentioned is genetics - obviously untreatable. So the only treatment choice available is - drugs and more drugs and newer drugs. No wonder that most doctors think that

1. Type 2 diabetes is a chronic and progressive disease.
2. The disease is a lifelong affair and cannot be reversed, that to be with diet /life style modifications alone.
3. How can it be that simple? You need drugs and that to be lifelong.

We as doctors are trained to prescribe. (Actually - We must learn to de-prescribe).

In short -

1. Medical education is mainly focused on managing the disease with the drugs.
2. Health as a more important part of life is appears to be neglected during the training of the doctors.
3. Due to this teaching, doctors are reluctant to change the treatment modality.
4. The diet and other life style changes if any needs to be done by the patients themselves. The doctors possibly has nothing to do with it.

This particular mind setup is an important reason why very few doctors follow the newer modalities of disease reversal. (Type 2 diabetes reversal with life style modifications).

Doctor's seminars and conferences -

Second learning station -

There appears to be a big disconnect between the medical physiology and the treatment approach for obesity and

diabetes along with metabolic syndrome and related disorders. The teaching - The insulin resistance is presumably a genetic/idiopathic and non-treatable entity (Actually it can easily be reversed through low carb diet with fasting and exercise schedule). The physiology tells that insulin is the storage hormone. But for treatment, total focus is on counting and reducing calories in the daily diet. In short the hormonal (insulin) theory of metabolic disorders with reference to food is neglected and calorie theory is endorsed.

The medical seminars and conferences are regularly conducted across the globe. It is a yearly ritual for most of the organizations of medical professionals. These events are expected to be the knowledge get ways for recent developments for the medical professionals. Most of these events are financed / sponsored by the pharma giants. Money plays a very big role in organizing events of such magnitude .The overall focus of these events is on newer drugs, investigations, technique, instruments, products (advertising campaign) for controlling the diseases.

So far as the lifestyle disorders are concerned only passing reference is given to modifying the lifestyle. Food, exercise, stress, sleep are either not discussed or given only one line importance.

The drugs (newer and costlier) take a center stage in these conferences. Usually the big names in the professional field are chosen as faculty. Obviously the doctors leave the venue only with drugs in the mind. The lifestyle modifications are again sidelined. The doctor after attending these seminars starts prescribing the newer drug thinking that the older drug (usually cheaper one) is not useful - newer , costlier , more drugs.

The doctor refuses to acknowledge that lifestyle is an important issue in managing the type 2 diabetes and related entities. Moreover the impact of these events is such that for his own personal problems also he relies on drugs as the only reliable solution. Obviously one cannot expect him to insist on life style as the solution to any of his patient's problems.

In short the doctors are not trained properly about lifestyle either in the medical colleges or medical conferences - one of the important reason why the doctors do not practice diabetes/obesity /hypertension reversal program through modifications of patient's lifestyle.

Third and fourth learning station - MR -

Doctor's clinic and Medical Representative - Third and Fourth (most effective) learning station -

Till now we tried to understand the importance given to the life styles in medical colleges and the various seminars/ conferences across the globe. In short the system is totally focused on drugs and drugs -----.

The patient attending the clinic should be the most important element in learning system of every doctor. The third learning station (clinic) is moreover completely over taken by the Pharma representatives (fourth learning Station). Most doctors do not get enough time to statistically analyse their patients (either a success or a failure). Patient's difficulties are easily overlooked. For example - you will find every doctor blaming a diabetic/obese for failing to lose weight. He will not think - is there anything wrong with my advice? As most patients fail to reduce weight .As you know the calorie theory, conventional advice of eat less and exercises more is a failure on long term. It fails in 99 % cases as a long term advice. More or less many of the doctors are totally dependent on the information provided by the pharma companies for patient care .The pharma companies provide the information which is

favorable for their drugs. There are many twists and turns in the information.

One must not forget that the drug companies are established to make profits. The companies are not bound to provide public / your health. The responsibility of the Medical

Representative is to ensure enough sales. If not, he may have to give up his job. Obviously he will try everything (yes everything) to ensure (sale) target. There are variety of ways and means for doing the same. At the end, slowly and smoothly the doctor becomes DR (Drug Representative). No other option available.

For every patient of type 2 diabetes, doctor tends to write the drug / insulin. He is happy once the blood glucose is controlled. He refuses even to think that type 2 diabetes may be reversed. Food doesn't appear in his list as a treatment modality at all. There are newer ideas, concepts, and research information available. Unfortunately not in the textbooks. Journey from research to textbooks takes about 20 or more years. Till then the doctors continue to follow the older / conventional methods. Somehow the drugs take an ultrafast route.

There are no representatives to spread out the information about health to the doctor and patients. There is no formal system to propagate the science underlying the possibility of diabetes reversal. The patients / society are totally dependent on few doctors who study the topic themselves for the well-being of their patients. The resource and research material is widely available on internet. Every physician (especially seniors) need to take a bold initiative to study diabetes reversal and implement it for their patients. The information about food and especially its implications in the diseases should be in public domain. The public must know what is good to eat and what is not good to eat.

Unfortunately there are no health representatives. This is usually what I tell to my patients -

Remember

- You are the one who is totally responsible for your health.
- Your family is the company of your health.
- You are the health representative of your own health.
- Your food is your drug (All what you need to reverse your T 2DM).
- You can do it. It's easy.
- It is scientific.
- It is proved.
- Only because there is no drug / cost, no one values it.
- Together we can and should do it.

Now we will try and answer -

Why other doctors criticize it?

(Understanding the paradigm shift of macronutrients)

Till now we tried to understand why doctors do not practice reversal of type 2 diabetes? Now we will try and understand why do they criticize the concept and modalities of reversal of type 2 diabetes? The various reasons are listed below -

- As mentioned earlier all the doctors have been taught and trained that
- Diabetes type 2 is a disease of unknown etiology.
- As the cause is not known the disease cannot be cured / reversed.
- It is a disease of mainly glucose metabolism.
- controlling the blood glucose is the solution.
- The only solution is drugs / OHA / insulin injections.
- The same treatment should be continued for life usually with incremental drug doses.

- The carbohydrates/ whole grains are healthy and should constitute about 60 % of daily calorie need.
- Fats are unhealthy and should be minimized in the diet.
- Humans need to eat 6 times a day, and fasting should be avoided.
- Plant sourced foods are healthy and should be the major constituent of meal.
- Animal sourced foods are unhealthy and their consumption should be minimized.
- Cholesterol in diet leads to increase in blood cholesterol. Increased blood cholesterol leads to heart diseases.
- Textbooks / recommendations are silent about food processing and impact of refined carbs.

The criticism for type 2 diabetes reversal mainly focuses on two major

Macronutrients- Carbohydrates and fats. Conventionally - Carbs are considered innocent or health protective in nature.

There are essential - (the ones which cannot be synthesized in the body) - amino acids. So good quality proteins are essential in daily meal - about .8 gm /kg ideal body wt.

There are essential - (the ones which cannot be synthesized in the body) - fatty acids - So good quality natural fat sources are essential in daily meal.

Are there anything like essential carbs for an adult human being? - Answer is NIL. It means body can synthesize all the carbs required by the body - gluconeogenesis - from non-carbohydrate sources. Daily body glucose synthesis can be about 2.8 gm / kg body weight (about 200 gm /day). There is NO disease identified as carbohydrate deficiency. Simply put your body needs carbs, but you need not put it in your mouth.

Dietary recommendations to general public is to have about 60 % calories from most non-essential ingredient - (carbs) without any consideration for refined component of it.

The reversal of diabetes

Type 2 Diabetes being a disease of insulin resistance which itself is due to persistent and high levels of insulin. Dietary carbs stimulate higher insulin secretion than protein and fats.

The reversal of diabetes requires - Lowering the insulin in the blood with-

1. To stop all processed foods/carbs completely.
2. To reduce the meal frequency.
3. To reduce carbs to the level of individual tolerance.

We must remember certain scientific facts -

1. There is no drug which can lower insulin safely like food.
2. Diabetes is a disease condition where carb (glucose) tolerance is minimal.
3. All the starches we eat - grains , pulses , fruits are ultimately digested and absorbed as sugars - glucose (grains starch) , fructose (fruits) , galactose (milk) . Do not forget that all the grains - (wheat , jawar , bajra , rice , ragi , corn etc) and all the dal (chana , tur , moong , lentils etc) contain large quantities (70 to 90 %) of starches (glucose) . The difference is only of duration / rate of absorption in intestines by few minutes . For example table sugar will be absorbed in 5 to 15 minutes while a wheat roti will take about 30 - min or more for absorption. A diabetic person is not capable of handling such a high load of carbs (sugar) from meal. Even though the blood insulin levels are high the blood glucose levels go very high (insulin resistance). Better solution is to reduce carb intake to suit your tolerance limit.

The problem is, if you reduce carbs something else has to be added, and what is that?

Answer is Fat. Considered a villain!!

More the reason for criticism.

Fat - A dietary villain

A major criticism is for reducing carbs and replacing it with fats comes from the ill-conceived concept of "Diet heart hypothesis".

Over last few decades fat is vilified as the reason for heart diseases.

Let us study about it. What is it?

1. Dietary cholesterol / saturated fat increases serum cholesterol.
2. Increased serum cholesterol increases risk of CAD. The Advice -
3. Decrease cholesterol (statins) so as to decrease risk of CAD.
4. Cholesterol is a health hazard and should be maintained at lowest possible level.

Dr Ancel Keys first proposed this hypothesis in 1950s. Several years later, He published the Seven Countries Study that reported a strong correlation between dietary fat and coronary mortality in seven countries. Based on this study National Dietary guidelines were introduced in US. They are as follows

1. Carbohydrate consumption to account for 55 to 60 % of caloric intake.
2. Fat consumption 30 % of caloric intake.
3. Saturated fat to account for 10 % of total energy intake; and balance that with polyunsaturated and monounsaturated fats, which should account for about 10 percent of energy intake.
4. Cholesterol about 300 mg a day.
5. Reduce sugar consumption by about 40 % to account for 15 % of total energy intake.
6. Reduce salt consumption by about 50 to 85 % to about 3 g/day.

Dietary recommendations were introduced for 220 million US and 56 million UK citizens by 1983, in the absence of supporting evidence from RCTs.

Does Dietary cholesterol increases serum cholesterol? The points to be noted are -

1. Cholesterol absorption -

Dietary cholesterol, combines with bile salts, from which cholesterol can be absorbed by the enterocyte. After that cholesterol is reassembled into chylomicrons.

Most ingested cholesterol is esterified, which causes it to be poorly absorbed by the gut.

2. Cholesterol homeostasis -

Most of the cholesterol in the blood is made by the body / liver itself. If you eat more, body synthesis of cholesterol is reduced. Lower intake from food has the opposite effect.

Ansel keys himself wrote:

The evidence — both from experiments and from field surveys — indicates that cholesterol content, per se, of all natural diets has no significant effect on either the cholesterol level or the development of atherosclerosis in man.

Does increased serum cholesterol levels increases risk of coronary artery disease? What does the research shows?

1. Prospective Urban and Rural Epidemiology study - PURE - observational study

135,335 individuals aged 35 to 70 years from 18 low- middle- and high-income countries - Suggest that

- High carbohydrate intake *increases* total mortality, while
- High fat intake is associated with a *lower* risk of total mortality and
- High fat intake has *no* association with the risk of myocardial infarction or cardiovascular disease-related mortality.
- Higher saturated fat intake appeared to be associated with a 21% *lower* risk of stroke. ... Explains Professor Salim Yusuf (McMaster University, Hamilton, Ontario, Canada), senior investigator for the PURE study.

"The problem is that poorly designed studies performed 25–30 years ago were accepted and championed by various health organizations when, in fact, there are several recent studies using better methods, which show that a higher fat intake has a neutral effect,"

2. Women's Health Initiative trial conducted by the National Institutes of Health in 49,000 women that showed no benefit of a low-fat diet on heart disease, stroke or cardiovascular disease.
3. Looking at all available trials up to 2009, there was no evidence found to support a link between total fat and heart disease. -
 - Saturated fats was not associated.
 - Neither was polyunsaturated fats.
 - Saturated fats were not bad.
 - Polyunsaturated fats (vegetable oils) were not good.

There was no connection at all.

4 - 20 year follow up to the Framingham data, the exact same protective effect of fat on stroke was seen. The 1997 study "Inverse association of dietary fat with development of ischemic stroke in men". Dividing the group by intake of dietary fat, it was found that -

- Those eating the most fat had the least strokes.
- Those with the lowest fat had the most strokes. Again here, eating fat was not bad, it was good.

Now we will look in to the third question -

Why some of the patients find it difficult to follow the given advice even when it is helping them?

There are various problems with the society at large so far as the reversal of type 2 diabetes is concerned.

All of them can be either due to misconception or confusion or both.

1. Unscientific Advertising -

Advertising of unscientific modalities as options for diabetes reversal protocols - As you all must be aware, if someone tries to search for options for reversal of type 2 diabetes, you will get endless list of possible options for the same on google, you tube, Facebook, WhatsApp etc. Most of them claim near 100 % success in reversing the type 2 diabetes. Many claim reversal of even type 1 DM. Almost all of such options are flooded with patient endorsements. These advertising protocols is the major reason for confusion amongst the large number of peoples. All these unscientific modalities have certain things in common. They can be listed as follows -

- Near 100 % success rate
- Results within days or weeks
- Patient has to buy certain product at a cost. The product has a secret formula -Hidden secret -
- Blaming the mainstream doctors for financial exploitation.
- After few visits they blame the patients for not following something or the other. So as to project -the product /advice is not the reason for failure.
- After few visits the agency comes out with some higher/better option at a different/higher cost.

All the basics of customer thought process and behavior are followed meticulously.

- Patient to patient contact is usually avoided
- The claims are usually described as

Own research, ancestral wisdom, traditional practice hidden by family, earlier available for only rich and famous etc.

- Mechanism of action and references to physiology are neglected.
- There are cure claims for other common diseases like obesity, heart diseases, cancer, AIDS etc.

The public in general easily get trapped in such advertising campaigns.

2. Unscientific Advertising by food companies -

Certain food products are advertised as diabetes friendly as they do not contain sugar. But what is not told is that they do contain some replacement for sugar - fructose , corn syrup , honey, agave, molasses , fruit juices , nectars , dextrose , etc. . Morever these processed foods are packed with variety of chemicals as acidity regulators, preservatives, emulsifiers, colors, and many more. Almost all are made up of processed, refined carbs which are not suitable for even healthy person leave aside diabetics .

All forms of print and visual media is flooded with such advertising contents. The patients fall prey to these advertising gimmicks and end up in frustration.

3. Carb oriented / centric / loaded food culture -

If we look around to analyze what an average Indian adult eats throughout the day. Not a difficult question at all - roti, dal, chawal, poha, upma, tea or coffee with sugar, biscuits, bread, fried food, sweets, breakfast cereals, oats, few vegetables and fruits - all carbs and refined carbs invariably coupled with refined oils, Ice cream, chocolates, wafers, samosa, wada, cold drinks, juices, jam, jelly, sauces, noodles, Make an important part of our food culture amongst all age groups, more so with younger age group.

Milk is usually served with added sugar or sugary protein powders for the kids. At many places you will find jaggery is considered as healthy alternative (actually equally worse) for sugar. Paneer makes it to the dining table uncommonly. Chakka /hung curd is served with added sugar - shrikhand. All In all - carbs and refined carbs and oils and sugar make it to the stomach all throughout the day. Even the sugary sports drinks are endorsed being healthy. No wonder India is the clear leader in diabetes and other life style diseases in the world.

The so called non vegetarians -eat animal sourced food like eggs, mutton, fish, and chicken only once or twice a month. They also use refined oils for cooking / frying the non-vegetarian foods. Strangely they are classified as non-vegetarians - means they may eat non-veg foods (not because they eat it on daily basis).

With more and more refined and processed, fried food products being available all across the country, the life style

disorders are taking a center stage in disease scenario.

4. Food environment - Science v/s commerce -

Especially in urban India if you visit the mall, you will find the stocks / products are arranged in a peculiar manner. The eye level is reserved for some prestigious products. This location demands a premium. After going through all those long rows you will find vegetables and fruits and farm products. The arrangements are designed purposefully so as to lure the customer. The customer's brain is literally hacked. He/ she buys the packs, boxes, bottles etc. with glossy and attractive packaging. On top of it, there are certain tricky offers displayed all over, which compel the customer to buy these products. The Good foods (farm produce, eggs, chicken, mutton, fish etc.) are arranged at the end of the show. By the time customer reaches to that point most of his purchasing power is exhausted.

5. Processed food addiction -

The big food companies hire the scientists to ensure that the products have uniform quality for visual, taste, consistency, flavor, and after taste etc. The processed products are designed to be addictive in nature so that the cycle (buying) continues. Customer asking for same product again and again and again. The big food giants do not have any commitment towards public health. They are committed to sales and ensure profit. Let the people suffer. Who cares?

6. Cultural practices -

There is another important cultural aspect to the problem. We as an individual and member of the society are endorsing processed, sweet, fried, branded food products as part of our Celebration. The most unhealthy products like chocolates , sweets , cold drinks , soda , breakfast cereals , noodles , fruit juices , jam , jelly , candy , bread , burger , pizza , pasta , biscuits etc are part of every celebration . We offer these things for birthday, weddings, party, etc. We installed these food products as good, healthy, prestigious, noble act /part of our life. Most parents would offer chocolates as a gift / reward to the kids. Most will not object to milk powder additives for the kids. Parents will be happy to offer biscuits, noodles sandwich to their kids for hunger. All the variety of these unhealthy highly processed food products have now become inseparable part of our food and family culture.

All varieties of processed food products, sugar, refined oils are the enemies of our health. Surprisingly many consultants who work as diabetes expert have written / printed instructions to their patients advising

Some biscuits, oats, poha, upma, as healthy food constituents.

No wonder drug companies are happy!!!!

I am a diabetic. I tried to search for a suitable biscuit for my personal use. Till date I have not found a single biscuit or a similar product in the market (from about 300 products) which I can label as healthy.

My sincere and scientific opinion - Not a single processed food product in the market is suitable for anyone, so also for diabetic.

Remember-

If food is processed and advertised - it is not food anymore. Who cares?