

## UNIQUE THERAPEUTIC APPROACH OF TAB.DIBET-ALL (A POLY HERBOMINERAL FORMULATION), TAB.DTOX-OD AND TAB.GLYBRA IN A NEWLY DIAGNOSED CASE OF TYPE-2 DIABETES MELLITUS - A CASE REPORT

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### INTRODUCTION

Along with all the commonly known rationale; oxidative stress, reactive oxygen species (ROS), growing number of AGEs, accumulation and outbreak of *Tridoshas* throughout year plays decisive role in the development of Diabetes as well as its complications. In the present study, I have discussed about their effective and economical management based on the principles of Ayurveda in the form of distinctive line of treatment which includes Tab.Dibet-all (a poly herbomineral formulation), Tab.Dtox-OD (tab.of *Terminalia chebula*) and Tab.Glybra (tab. of *Glycyrrhiza glabra*). This trio is indistinguishable from allopathy drugs in terms of pharmacology. With so many benefits concealed inside; this line of treatment is having remarkable potential regarding antidiabetic, antiglycating, antihyperlipidemic, rejuvenative and preventive/protective activities. As long as we are not living in harmony with nature and our constitu-

tion, we cannot expect ourselves to be really healed. *Ayurveda* gives us the means.

### CASE HISTORY:

A 38 year old male patient came to my clinic on 8/06/2017 with chief complaint of obesity (79.1 kg) of height ~ 5' 7'' along with allied common complaints of obesity like breathlessness, increased sweating, snoring, inability to cope with sudden physical activity; feeling very tired every day etc. On taking detailed history of the illness, patient was found to have strong positive family history of Diabetes mellitus. His father was a patient of uncontrolled diabetes mellitus and eventually died with chronic heart disease at the age of 60. Suspecting him a diabetic; patient was ask to go for blood sugar levels first which was reported to be 208.79 mg/dl fasting blood sugar (FBS) and 299.25 mg/dl post prandial blood sugar (PPBS). After confirm diagnosis of DM the Ayurvedic treatment (Table.1) was

started on 11/06/17 suggesting him to consult an allopathic dibetologist; as patient was bit anxious about BSL reports. [Later on through a phone call I came to know that the antidiabetic

drug Tab.Geminor M-1 od (Metformin (SR) - 500 mg + Glimperide-1mg) was started to him from 14/06/2017 by a MD medicine allopathic doctor]

**Table 1:** Ayurvedic treatment given:

Sr.no	Name of the drug	Dose	Duration
1	Tab.Dibet-all-600 mg (a poly herbomineral formulation)	2 tablets bid with a cup of lukewarm water 10 minutes before meal	4 months
2	Tab.Dtox-OD-600 mg (tablet of <i>Terminalia chebula</i> )	2 tablets early in the morning around 5 to 6 am	5 months
3	Tab.Glybra-500 mg (tablet of <i>Glycyrrhiza glabra</i> )	1 tablet as an adjuvant (Anupaan) to Tab.Dtox-OD	5 months

**Assessment:** The patient was examined once in a month on an average. In the present study only the laboratory findings of fasting blood sugar (FBS) and post prandial blood sugar (PPB) were

kept. After completion of 5 months of treatment, the efficacy of the therapy was assessed on the basis of the objective criteria only i.e. BSL & weight.

## RESULTS

**Table.2:** Laboratory findings of fasting as well as post prandial blood sugar:

Assessment criteria	Parameter	11/06/17	5/07/17	10/08/17	10/09/17	10/10/17	13/11/17	14/12/17
Objective	FBS	208.79	85.19	81.10	105.79	76.14	76.98	84.14
	PPBS	299.25	152.33	157.12	170.87	127.45	138.67	124.57

**Table.3:** Change in weight at the time of every follow-up

Assessment criteria	08/06/17	07/07/17	17/8/17	20/9/17	24/10/17	13/11/17	14/12/17
weight in kg	79.1 kg	76.2 kg	74.7 kg	73.8 kg	73 kg	70 kg	68 kg

**Table.4:** Tapering dose of allopathic drug:

Name & Dose of tablet	14/06/2017	From 17/08/17 onwards	From 10/10/17 onwards
Tab.Geminor M-1 (Metformin(SR)-500 mg + Glimperide-1mg)	1 OD	½ OD	Stopped

**Table.5:** Tapering dose of ayurvedic medicines

Name & Dose of tablet	11/06/2017	From 10/10/17 onwards	From 24/10/17 onwards	From 13/11/17 onwards
Tab.Dibet-all-600 mg	2 bid	1 bid	Stopped	Stopped
Tab.Dtox-od-600 mg	2 od	Kept as it is	1 od	Stopped
Tab.Glybra-500 mg	1 od	Kept as it is	Kept as it is	Stopped

**Table.6:** Overall Effect of Therapy after Completion of Treatment

Assessment criteria	Parameter	Before treatment	After treatment
Objective	FBS	208.79	84.14
	PPBS	299.25	124.57
	Weight	79.1 kg	68 kg

## DISCUSSION

This line of treatment for Diabetes mellitus is designed on the very basic principle i.e. the drugs that work along with endogenous insulin secretion, overcoming resistance, maintaining normal blood sugar level and restoring the liver glycogen level on one hand and also possess antioxidant activity on the other.[1] Antidiabetic, antiglycating, antihyperlipidemic, rejuvenative and preventive/protective activities by the means of breaking cross-links of proteins in-

duced by AGEs, inhibition of AGE formation, blockade of the AGE-RAGE interaction, suppression of RAGE expression and prevention from glycer-AGEs-induced ROS formation ensuring good control over intricate pathology of diabetes and thus protecting diabetics to a higher extent from the complications of diabetes slowly footing towards them. This is the most imperative thing regarding intricate and vague pathology like Diabetes mellitus.

**Table.7 (A):** Actions of Ayurvedic herbs from Dibet-all and their possible mechanism:

Sr. no.	Actions of Ayurvedic herbs identical to allopathic drugs	Possible mechanism of Ayurvedic herbs in allopathic perspective	References (Articles are hyperlinked to Pubmed ids)
1	<b>Like Insulin Secretagogue</b> (Increase insulin secretion & mimic insulin)	- Insulin release through K(+)-ATP - Insulinogenic or mimic insulin  - Improves insulin sensitivity	12127231  2698039, 16755004, 20734343 18560025, 20521978  24490949, 28401081
2	<b>Like Alpha Glucosidase inhibitor</b> (Lowers glucose absorption from gut)	- $\alpha$ -glucosidase inhibitor and  - $\alpha$ -amylase inhibitor (starch blockers or Carbohydrate-blockers)	18256469, 14577333, 22975503, 19555164  22975503, 22980852
3	<b>Like TZD + Biguanide</b> (Regularizes muscular glucose uptake)	- Activation of GLUT4  - Increasing AMPK signaling	23104384  20561944
4	<b>Like Biguanide</b> (checks glucose release from liver)	- DPP-4 inhibitory	24074231

**Table.7 (B):** Beneficiary effects of Ayurvedic herbs from Dibet-all and their possible mechanism:

Sr. no	Benefit / Action	Possible mechanism of Ayurvedic herbs	References (Articles are hyperlinked to Pubmed ids)
5	AGE inhibitors	Potent inhibitor cross-linking and breaker of collagen cross linking	24759763 25026338
6	Anti-hyperlipidemic	<b>Lipid lowering</b>	18058598, 12458656, 20358863, 22529483, 22701250, 18813412
		<b>Lipase inhibitors</b> [Lipase inhibitors may affect the amount of fat absorbed, yet they do not block the absorption of a particular type of fat]	22511465, 21511020
7	Protective	- Renoprotective  - $\beta$ -cells protecting - Neuroprotective  - Cardio protective - Hepato protective - Anti-cataract - Cardio protective activity B.P regulator	16677399, 23926695, 22945782, 12065151, 21905281, 23127801 PMC3183631, 22766034, 17665974  17641739, 8698423, 23957355, 22521731, 20868513, 24667360, 21056650, PMC348078 22014262, 25371774 22557255, 9715310 15234767, 22485126 22784355, 22224046
8	Anti-atherosclerotic	Reversal of fatty change in blood vessels and alteration in serum lipid profile.	21800129
9	Feeling of satiety	Acts on TEF (Thermal effect of Food)	22538118
10	Anti-oxidant	By scavenging free radicals	22512724,16459485, 23125509, 24418077

**Table 8:** Plausible role of Tab.Dtox-OD (tab.of *Terminalia chebula*) in Diabetes mellitus

Name of the herb	Possible mechanism of this Ayurvedic herb in allopathic perspective	References (Articles are hyperlinked to Pubmed ids)
Tab.Dtox-OD-600 mg (tablet of <i>Terminalia chebula</i> )	- Alpha glucosidase inhibitory	PMC3382786
	- antihyperlipidemic, tissue glycogen content reducing and in vitro release of insulin	18058598
	- protective against AGEs induced endothelial cell dysfunction	20659546
	- potent inhibitor cross-linking and breaker of collagen cross-linking	24759763
	- increases insulin stimulated glucose uptake without inducing the adipogenesis	23850833
	- potential source of natural antioxidants	19275712, 22512724
	- reduced AGE-induced ROS generation	21308613
	-improves biochemical alterations caused by renal ischemia	22963650
-having strong nutraceutical potential	27542453	

Thus Tab.Dtox-OD (tab.of *Terminalia chebula*) might have played a role as Preventive, Curative and Rejuvenative medicine in the present case study.

**Table 9:** Beneficiary effects of Tab.Glybra (tab.of *Glycyrrhiza glabra*) in Diabetes mellitus

Name of the herb	Possible mechanism of this Ayurvedic herb in allopathic perspective	References (Articles are hyperlinked to Pubmed IDs)
Tab.Glybra-500 mg (tablet of <i>Glycyrrhiza glabra</i> )	-effective against hyperglycaemia, hyperlipidaemia and associated oxidative stress	21235594
	-improves fatty acid oxidation and glucose homeostasis	23923606
	- useful in inhibition of protein glycation and oxidation	27495289

## CONCLUSION

This case study documented substantial reduction in weight and marked antihyperglycemic effect of this treatment regime. With Antidiabetic (*Pramehaghna*), Antihyperlipidemic (*Medohar*) and Rejuvenative (*Rasayan*) properties this therapy might have countered the complex derangements of type-2 Diabetes mellitus. The consorted approach of management explored here may serve as a light of hope towards search of ideal treatment for Diabetes mellitus as well as its complications. This therapy can be a supplementary remedy for type-1, hereditary and chronic diabetes. Further

preclinical and clinical studies are warranted to establish the effectiveness, cost-benefits and to explore clinical endpoints.

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**Conflict Of Interest: None Declared**

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