DOI: 10.21276/IJIPSR.2018.06.07.711

International Journal of Innovative Pharmaceutical Sciences and Research
www.ijipsr.com

EVALUATION OF COMPARATIVE EFFECT OF ANTIDIABETIC DRUG USED IN DIFFERENT SYSTEM OF MEDICINE WITH OR WITHOUT SPECIFIC DIET PLAN

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Abstract

Diabetes is a problem with body that cause blood glucose level to rise higher than normal these are four type1,type2, gestation diabetes and genetic there are many symptoms create in our body being thirstier, dry mouth and itchy skin, blurred vision many medicine uses in these symptoms like metformin, glizipide, glimipride, vidagliptin, sitagliptin ayurvedic treatment bitter gourd juice methi seeds, jamun seeds, amla, cinnamon powder, triphala, snake ground homeopathic treatment phosphorus, phosphoric acid, gymnema sylsestre diet plan diabtic patient salad, missi chapati, curd raita, dalia, veg soup, milk without sugar. Treatments are employed by the different system of medicines i.e. allopathic, homeopathic and ayurvedic system respectively in the presence and absence of specific diet. Fifteen volunteers were employed for study and only ten volunteers are subjected for test and other volunteers are withdrawal from the group. All these patients are divided in to six groups i.e. 'Group 1' (Only medicine-allopathic), 'Group 2' (Medicine +Diet), Group 3' (Only medicine - Ayurveda), 'Group 4' (Medicine + Diet), 'Group 5' (Only medicine - Homeopathic) and 'Group 6' (medicine + Diet) respectively. Study period of all group was four months and diagnosed on the basis of glucose tolerance test by using Glucometer. The result is taken and reported in the records. From the proper study of the volunteerism was concluded that only allopathic medicine patient was improved in short time.

Keywords: Diabetes, Glucose level, Allopathic system, Ayurvedic system, Homeopathic system.

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Chudamani et.al / IJIPSR / 6 (07), 2018, 20-33
ISSN (online) 2347-2154
DOI: 10.21276/IJIPSR.2018.06.07.711

INTRODUCTION

Diabetes is a metabolic disorder in which our body's use of food for production of energy is affected.Diabetes is a problem with our body that causes blood glucose (sugar) levels to rise higher than normal which is called as hyperglycemia by foods like sweets,junk food and other oily materials. Insulin helps to move the glucose from the blood into the cell. When glucose enters in to the cell, it is either used as fuel for energy right away or stored for later use. As per data collected from various sources, 9.5% of adults aged 18 years and older had diabetes. The global prevalence of the disease among adults over 18 years of age has risen from 4.7% in 1980 to 8.5% in 2014. The diabetes is the most dangerous disease in human body, the 1.5 million deaths and high blood glucose level was the main cause of another 2.2 million deaths in 2012.Almost half of all deaths attributable to increase blood glucose occur bellow the age of 70 years. The WHO projects that diabetes could be the part glucose main reason of death in 2030.Diabetes is higher in urban, intermediate in pre-urban and lower in rural areas which was reported by the National-wide NCD risk factor survillance study. self-reported diabetes was reported highest prevalence in urban (7.3%) which was followed by preurban/ slum (3.2%) in limited in rural area (3.1%) urban residence, Around 31.7 million diabetes patients were found during the year 2000 which may further rise to 79.4 million by the year 2030**.** [1,2, 3]

Diabetes is mainly classified as follows:

Type 1: Immune system mistakenly destroys the beta-cells, which are the cells in the pancreas which make insulin. Body treats these beta-cells as foreign invaders and destroys them. The destruction can happen over a few weeks, months, or years. When enough beta cells are destroyed, pancreas stops the production of insulin, or makes so little insulin that you need to take insulin to live.

Type 2: Body does not use insulin properly. This is called as insulin-resistance. At first, the beta-cells make extra insulin to make up for it. But, over time pancreas shouldn't able to keep up and cannot produce enough insulin to keep the blood glucose at normal ranges. Type 2 diabetes can also control by healthy eating and exercise.

Gestational Diabetes: This type of diabetes develops during pregnancy. For most women, blood glucose levels will return to normal after giving birth. If anyone have GDM then they have to be tested regularly since you are at much higher risk for developing type 2 diabetes later in life

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Genetic defects of β-cell function characterized by mutation in Glucokinase (MODY 2), insulin promoter factor-1 (IPF-; MODy4), Subunits of ATP-sensitive potassium channel, Hepatocyte nuclear transcription factor (HNF), 4α (MODY1) NeuroD1 (MODY 6), NF-1α (MODY 3), Pro-insulin or insulin conversion, HNF-1β(MODY 5), Mitochondrial DNA.

Defect in insulin action: Type A insulin resistance i.e. Leprechaunism, Lipodystrophy syndromes and Rabson-Medenhall syndrome. [4, 5, 6]

Allopathic System

Diabetes can be control by various methods:

Improve Insulin Availability: Exogenous insulin, Meglitinide analogues, Sulfonylurea

Overcome insulin resistance:Biguanides, Glycosidase inhibitor, Thiazolidinedione, Gliptins. [7]

Ayurvedic System

Since last 5000 years ayurveda is found to be prevalent in India that is believed to be an ancient science of life.

Ayurveda does not regard Diabetes as a disease that can be treated by mere medicine or by a dietary regimen. Madhumeha is classified as a 'MahaRog' (Major Disease) because, if not treated in time, it can causes several complications, like kidney failure, impotency, joint pains eye problems, urologic and sexual problems.[8, 9]

Homeopathic System

This system was proposed by Samuel Hahnemann that the disease causes by itself and can be used for its treatment. Same type of extract should employed for treatment in the case of any physical, emotional and mental symptoms and that treats by small doses.

Phosphorus is a best natural Homeopathic medicine of great remedy of higher benefits for weakness of vision having diabetic patient.

Syzygiumjambolanum Top Homeopathic medicines for reducing sugar levels

It acts efficiently and promptlyin reducing the sugar levels and also provides wonderful results in treatment of long-standing ulcers in case of a diabetic patient.

Phosphoric Acid- In a case of diabetic patient, it is a best natural Homeopathic remedy for extreme weakness, either mental or physical symptoms. They have a weak memory and are forgetful. It is also the best remedy for numbess of feet in patients of Diabetes Mellitus. Gymnema Sylvestre is a best natural remedy for patient with Diabetes Mellitus who are losing weight with exhaustion and weakness. It also works as a tonic resulting in improvement of overall health and patient puts on weight and feels energetic. [10, 11]

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Diet Chart for Diabetic Patient [12]

Early morning (6am to 7am):fenugreek seeds (methiDana)Water 1 glass

Breakfast (8am to 9am): milk 150ml without sugarStuffed roti 2, Egg white part 2 pics

Midmorning:(Fruits it should change daily): Coconut water butter milk 1 glass.

Lunch(1PM): Salad 1plateMissi chapatti, Vegetable 1bowl, Daal 1 bowl, Curd raita 1 bowl, Boiled rice 1bowl (once in a week)

Evening (4PM): Green tea 1cup without sugar (Ginger tea+Roostedchanna, Sugar free Biscuit)

Evening (6PM): veg powha/ veg Dalia/ namkeenattasawaiyaan/ veg soup home maid/ fruit.

Dinner (7:30PM to 8PM): Missi chapatti 2, Vegetable 1 bowl, Daal 1 bowl

Bed Time (10Pm): Milk 1 cup.

MATERIAL AND METHOD

- Patient taken of age 19-75 years of healthy weight between 42-85kg.
- All volunteers are recently diagnosed on the basis of glucose Tolerance test, by using Glucometer.
- Result is taken and written in the records.
- No. of patient 15 in each group.
- Study periods four months.

List of instrument and materials used

- Digital weighing machine
- Diabetes screening machine- Glucometer
- Registrationforms forpatient
- Data collectionforms
- Patient ID card
- Feedback forms

Experiment Patient: Human patient suffering from type 2 diabetic mellitus employed for the present investigation.

Criteria for Inclusion:

Age between 18-80 yrs, healthy, body weight between 40-85kg and cooperative.

All type II DM or Known DM or recently diagnosed on based of GTT.

All Diabetic < 6years duration.

Glucose > 200mg/100ml or Blood Sugar> 200 with feature of Glucotoxicity.

DOI: 10.21276/IJIPSR.2018.06.07.711

Blood Sugar fasting > 126mg/dl or Post Prandial.

Criteria for Exclusion:

- Diabetic with renal failure
- Diabetic with pregnancy
- Diabetic with secondary OHA failure
- Diabetic with cancer or AIDS or Jaundice
- Diabetic with acute complication

Criteria for withdrawal

During the course of the study, if serious condition develop, this requires urgent treatment, such subjects should withdrawn from the study.

Routine Examination and Assessment

Full detail of history and physical examination of volunteers will be recorded. In the first study session the baseline reading (fasting blood glucose, postprandial blood glucose, glycosylated hemoglobin, and body mass index) will be recorded. Then the patient will be given supply of tablets at the start of study and then after agree 15 days the re-examination will be done for the same parameters till 4 month.

Experimental Protocol

Total number of patient will be involved: 15/group

Study period:4 months

Group 1: Only medicine (allopathic): The volunteers will receive 1000mg of metformin/tinipride/insulin/voglibose for 120days

Group 2: Medicine + Diet: The volunteers will receive 1000mg of metformin/tinipride/insulin/voglibose for 120days + Specific Diet.

Group 3 : Only medicine (Ayurveda): The volunteers will receive karela juice + madhunashani for 120 days.

Group 4: Medicine + Diet: The volunteers will receive karela juice + madhunashani + Specific Diet.

Group 5: Only medicine: (Homeopathic): The volunteer will receive phosphoric acid for 120 days.

Group 6: Medicine + Diet: The volunteers will receive phosphoric acid + Specific Diet.

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ISSN (online) 2347-2154
DOI: 10.21276/IJIPSR.2018.06.07.711

RESULT

Ten patients were selected for all posology:

Table 1: Group 1- Only medicine (allopathic)

S.No.	Age (Years)	Gender	Body Weight (Kg)	Body Glucose Level 0 Day	1 Month	2 Month	3 Month	4 Month
Pa.1	38	Male	76.5	0	332	258	255	186
Pa.2	45	Male	66	0	220	186	210	182
Pa.3	76	Female	83	0	266	182	198	160
Pa.4	59	Female	85	0	440	280	256	186
Pa.5	52	Female	56	0	269	186	176	176
Pa.6	50	Male	79	0	305	265	265	200
Pa.7	53	Male	70	0	330	220	210	198
Pa.8	66	Female	81	0	220	206	186	148
Pa.9	45	Male	65	0	220	206	186	180
Pa.10	55	Male	75	0	320	340	230	200

Where, Pa. = Patient

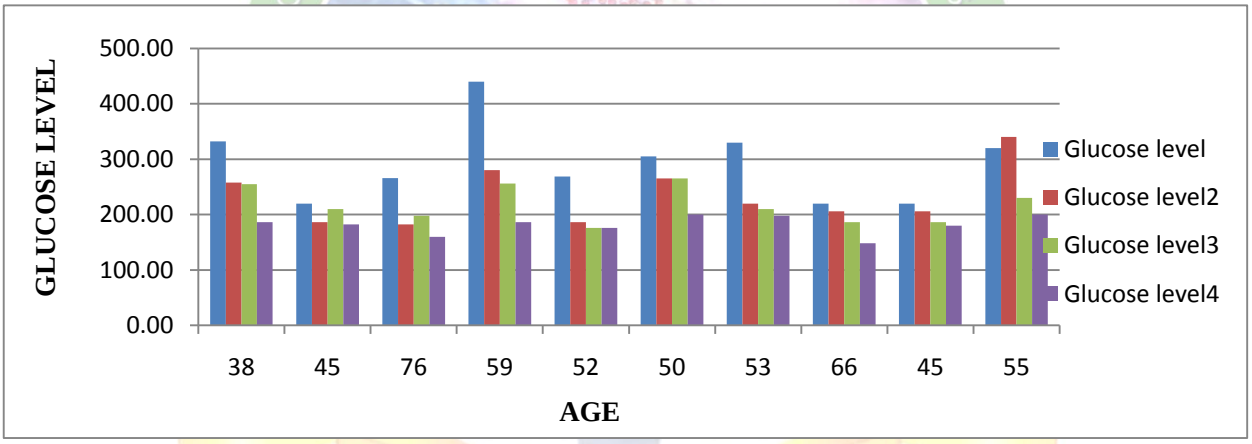

Fig. 1: Glucose level of Group 1: Only medicine (allopathic)- on the basis of age.

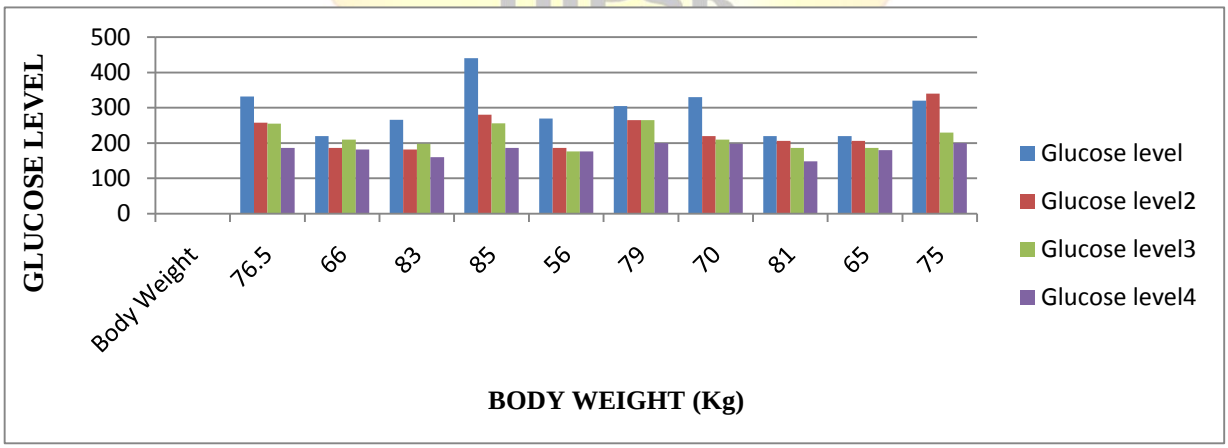

Fig. 2: Glucose level of Group 1: Only medicine (allopathic)- on the basis of body weight.

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ISSN (online) 2347-2154
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Table 2: Group 2- Medicine + Diet

S.No.	Age (Years)	Gender	Body Wt. (Kg)	Body Glucose Level				
				0 Day	1 Month	2 Month	3 Month	4 Month
Pa.1	50	Female	86	0	269	266	186	170
Pa.2	68	Female	76	0	320	280	220	210
Pa.3	39	Male	80	0	400	350	200	200
Pa.4	59	Male	76	0	330	288	250	280
Pa.5	49	Female	50	0	266	192	198	160
Pa.6	56	Male	60	0	322	258	255	207
Pa.7	68	Male	80	0	330	320	210	270
Pa.8	89	Male	70	0	180	170	170	160
Pa.9	65	Female	85	0	305	365	230	280
Pa.10	40	Male	50	0	300	200	200	180

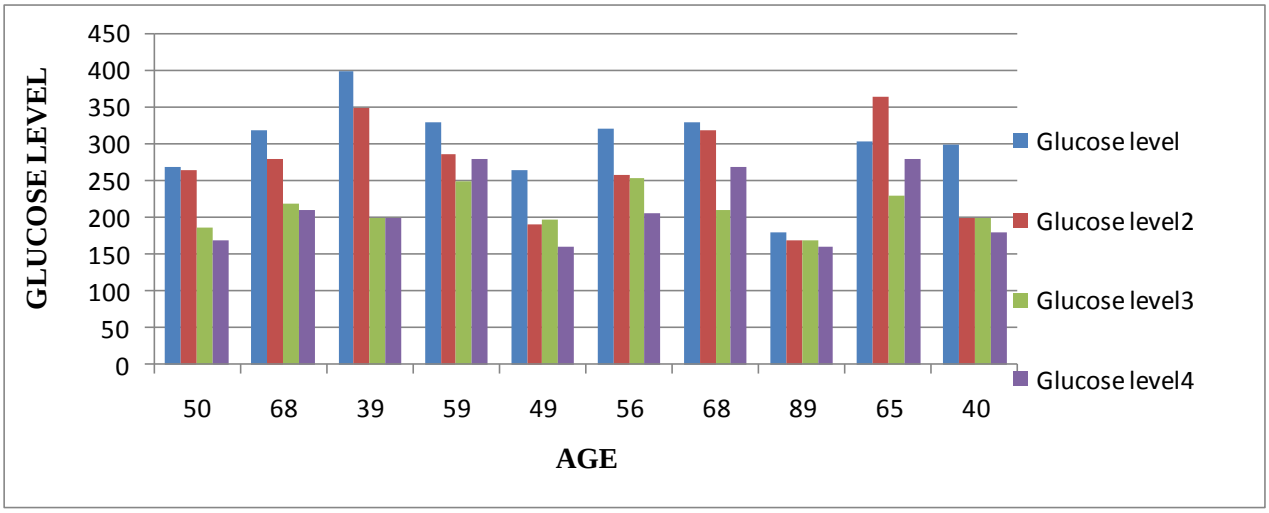

Fig. 3: Glucose level of Group 2: Medicine + Diet- on the basis of age.

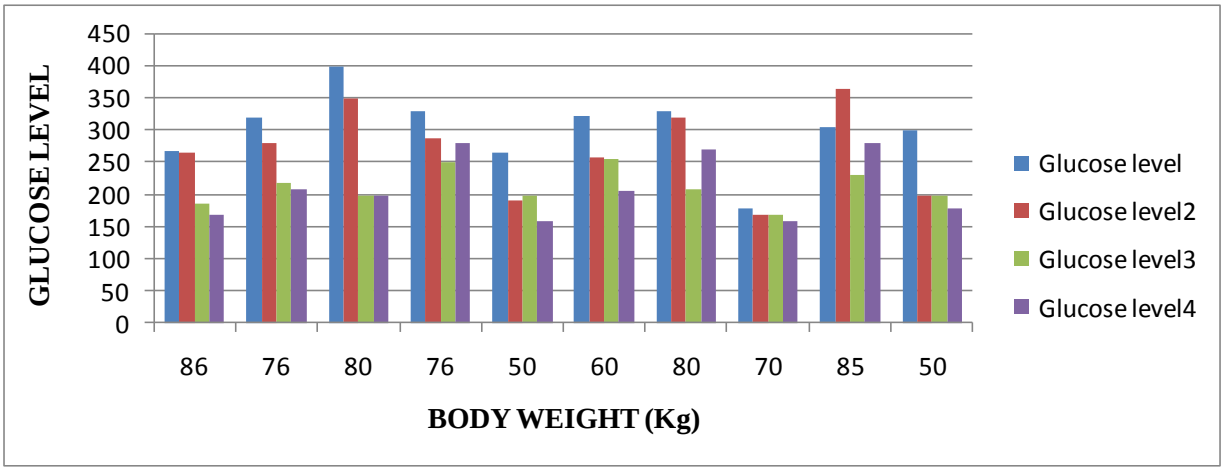

Fig. 4: Glucose level of Group 2: Medicine + Diet- on the basis of body weight.

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ISSN (online) 2347-2154
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Table 3: Group 3- Only medicine (Ayurveda)

S.No.	Age (Years)	Gender	Body Wt. (Kg)	Body Glucose Level				
				0 Day	1 Month	2 Month	3 Month	4 Month
Pa.1	60	Male	78	0	286	280	250	286
Pa.2	55	Male	89	0	280	250	235	210
Pa.3	45	Male	50	0	186	180	170	190
Pa.4	75	Female	75	0	208	200	180	170
Pa.5	47	Male	70	0	220	200	180	160
Pa.6	50	Male	60	0	280	200	180	170
Pa.7	69	Female	65	0	280	220	200	180
Pa.8	69	Female	80	0	220	180	170	170
Pa.9	60	Female	79	0	250	200	180	170
Pa.10	75	Male	55	0	250	220	210	189

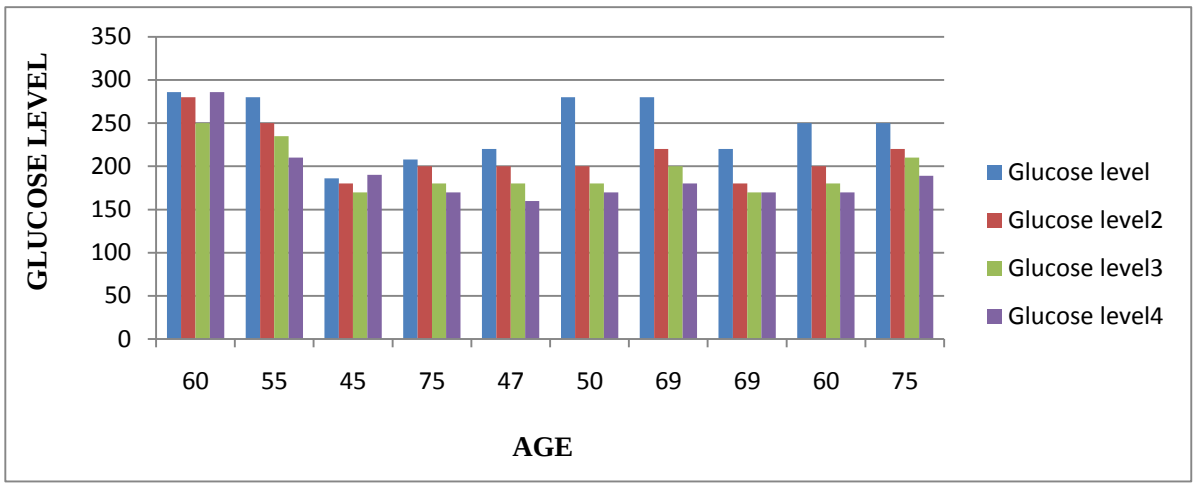

Figure 5: Glucose level of Group 3: Only medicine (Ayurveda)- on the basis of age.

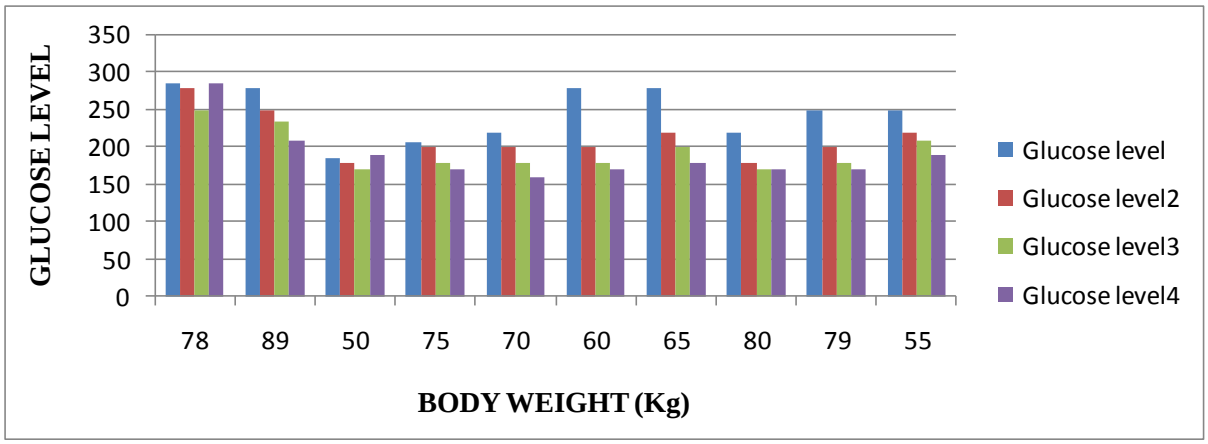

Figure 6: Glucose level of Group 3: Only medicine (Ayurveda)- on the basis of body weight.

DOI: 10.21276/IJIPSR.2018.06.07.711

Table 4: Group 4: Medicine + Diet

S.No.	Age (Years)	Gender	Body Wt. (Kg)	Body Glucose Level				
				0 Day	1 Month	2 Month	3 Month	4 Month
Pa.1	40	Male	70	0	280	200	180	170
Pa.2	55	Male	70	0	220	180	170	179
Pa.3	60	Male	75	0	250	220	210	180
Pa.4	45	Male	79	0	240	210	200	186
Pa.5	58	Male	50	0	270	210	200	190
Pa.6	59	Female	80	0	280	240	290	280
Pa.7	45	Female	50	0	250	220	210	199
Pa.8	65	Female	55	0	270	220	200	178
Pa.9	47	Male	60	0	220	200	180	160
Pa.10	50	Female	67	0	280	200	180	188

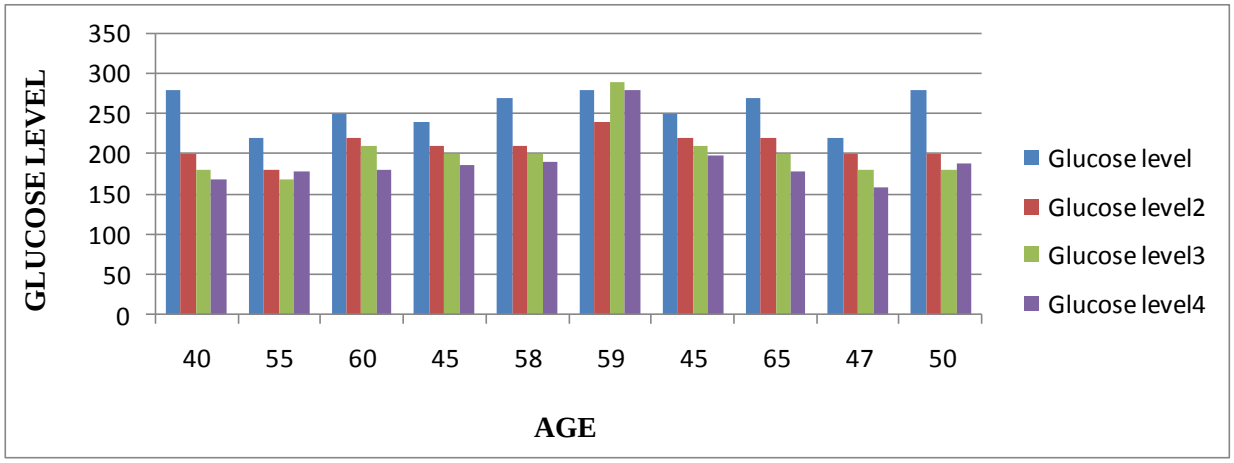

Figure 7: Glucose level of Group 4: Medicine + Diet- on the basis of age

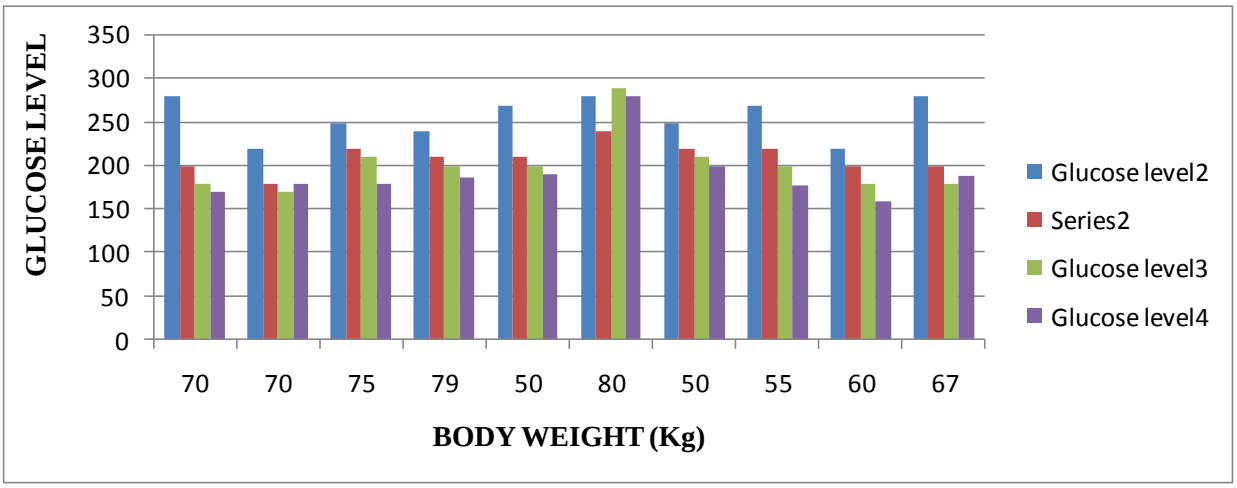

Figure 8: Glucose level of Group 4: Medicine + Diet - on the basis of body weight

DOI: 10.21276/IJIPSR.2018.06.07.711

Table 5: Group 5- Only medicine: (Homeopathic)

S.No.	Age (Years)	Gender	Body Wt. (Kg)	Body Glucose Level				
				0 Day	1 Month	2 Month	3 Month	4 Month
Pa.1	40	Male	55	0	320	300	300	245
Pa.2	75	Male	60	0	280	280	250	200
Pa.3	75	Male	78	0	300	280	280	240
Pa.4	60	Female	86	0	269	266	260	260
Pa.5	55	Male	70	0	400	350	340	280
Pa.6	40	Male	62	0	330	288	250	180
Pa.7	50	Male	60	0	266	182	160	166
Pa.8	45	Male	69	0	322	258	255	186
Pa.9	47	Male	70	0	320	240	230	200
Pa.10	69	Female	73	0	280	250	240	186

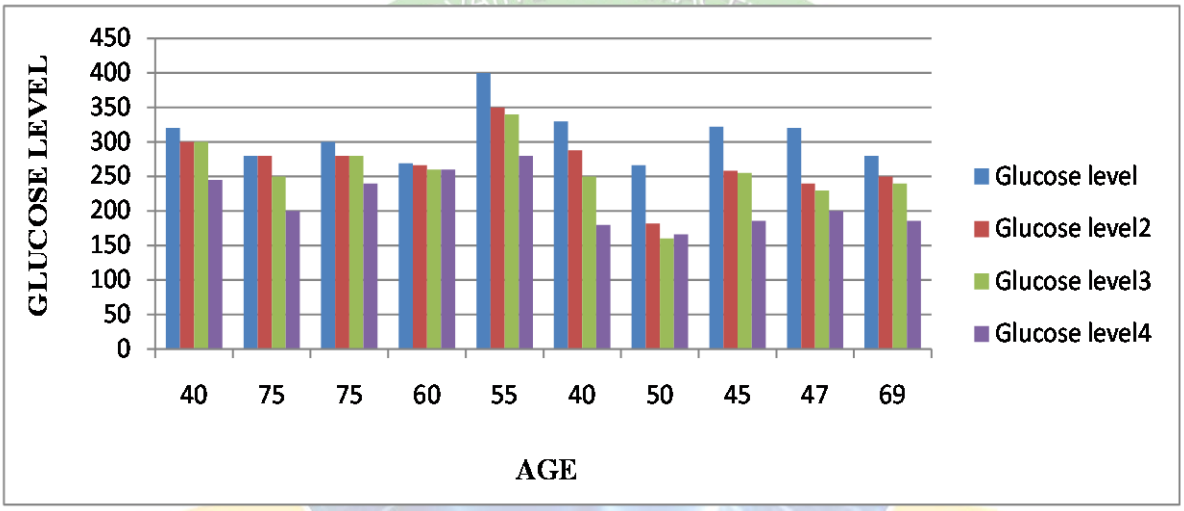

Figure 9: Glucose level of Group 5:Only medicine (Homeopathic)- on the basis of age.

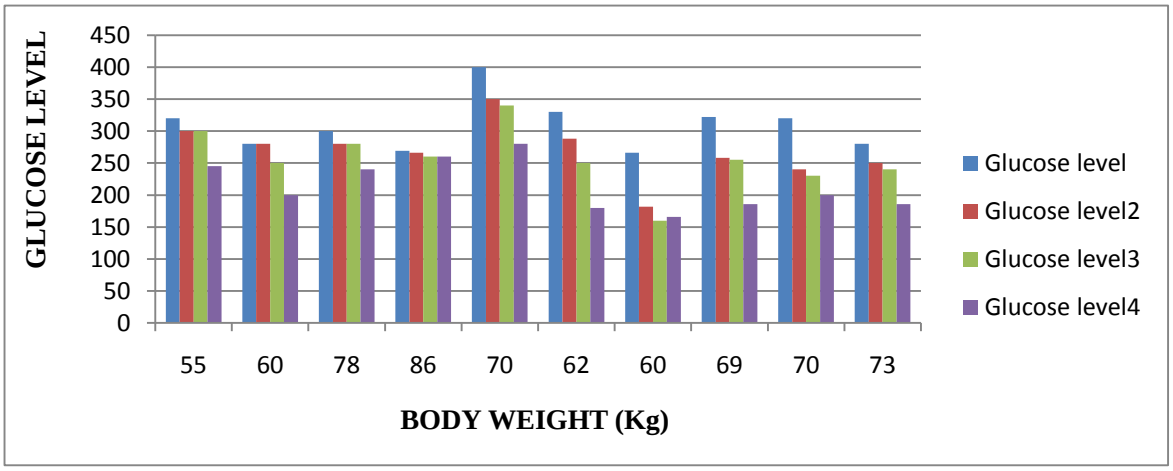

Figure 10: Glucose level of Group 5: Only medicine: (Homeopathic)- on the basis of body weight.

DOI: 10.21276/IJIPSR.2018.06.07.711

Table 6: Group 6: Medicine + Diet

S.No.	Age (Years)	Gender	Body Wt. (Kg)	Body Glucose Level				
				0 Day	1 Month	2 Month	3 Month	4 Month
Pa.1	55	Male	69	0	340	260	250	250
Pa.2	47	Male	60	0	330	270	200	200
Pa.3	45	Female	60	0	280	250	230	220
Pa.4	50	Female	79	0	270	240	200	180
Pa.5	69	Male	80	0	320	300	280	260
Pa.6	40	Male	75	0	300	270	260	240
Pa.7	55	Female	80	0	340	320	300	286
Pa.8	76	Female	90	0	342	370	300	270
Pa.9	60	Female	70	0	276	250	250	290
Pa.10	50	Female	55	0	350	300	290	270

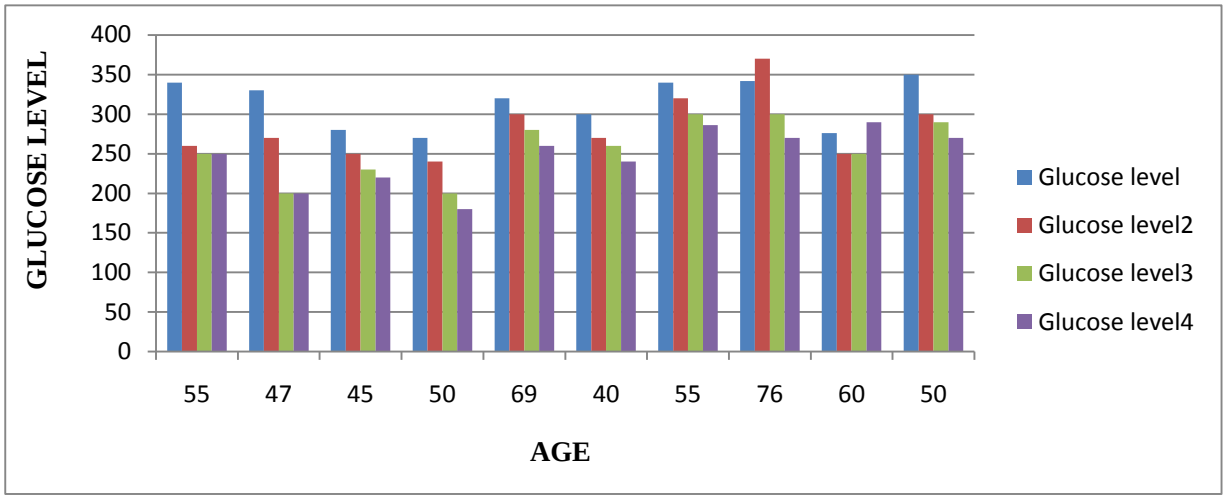

Figure 11: Glucose level of Group 6: Medicine + Diet- on the basis of age.

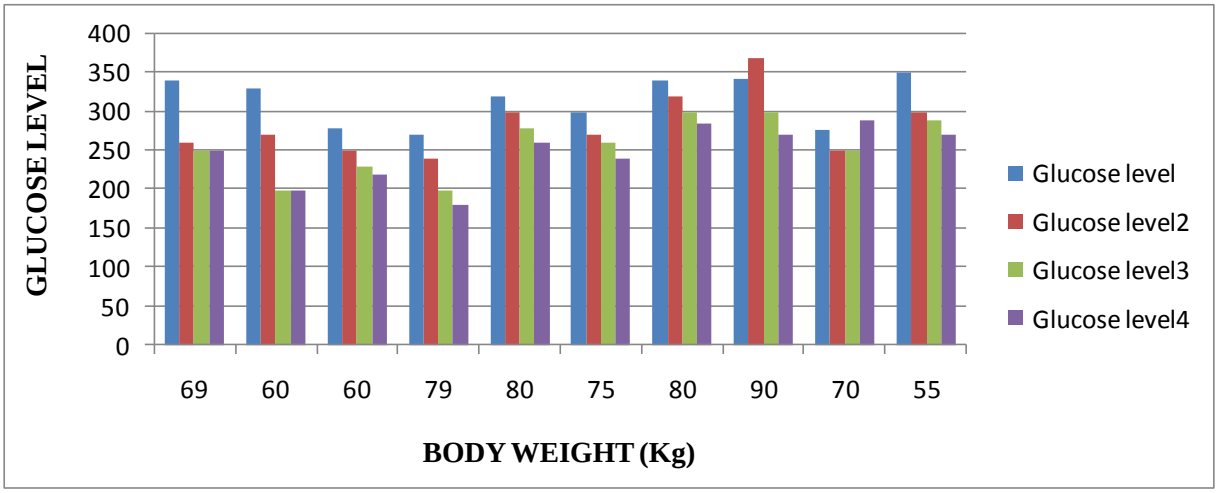

Figure 12: Glucose level of Group 6: Medicine + Diet- on the basis of body weight.

DOI: 10.21276/IJIPSR.2018.06.07.711

Table 7: Percentage reduction in different group

S. No.	Am (%)	Am+d (%)	Alm (%)	Alm+d (%)	HMm (%)	HMm+d (%)
1	43.97	36.80	4.19	39.28	23.43	26.47
2	17.27	34.37	25.00	18.63	28.57	39.39
3	39.84	50.00	2.15	28.00	20.00	21.42
4	57.72	17.85	15.00	22.5	3.34	50.00
5	34.57	39.84	27.27	29.62	30.00	18.75
6	34.42	35.71	39.28	00	45.45	20.00
7	40.00	18.18	35.71	20.4	37.59	18.88
8	32.72	11.11	22.72	34.07	42.23	42.10
9	18.18	6.66	32.00	27.27	37.5	2.06
10	37.5	40.00	24.4	32.85	33.57	29.62

Where, Am = Group 1, Am+d = Group 2, Alm = Group 3, Alm+d = Group 4, HMm = Group 5, HMm+d = Group 6

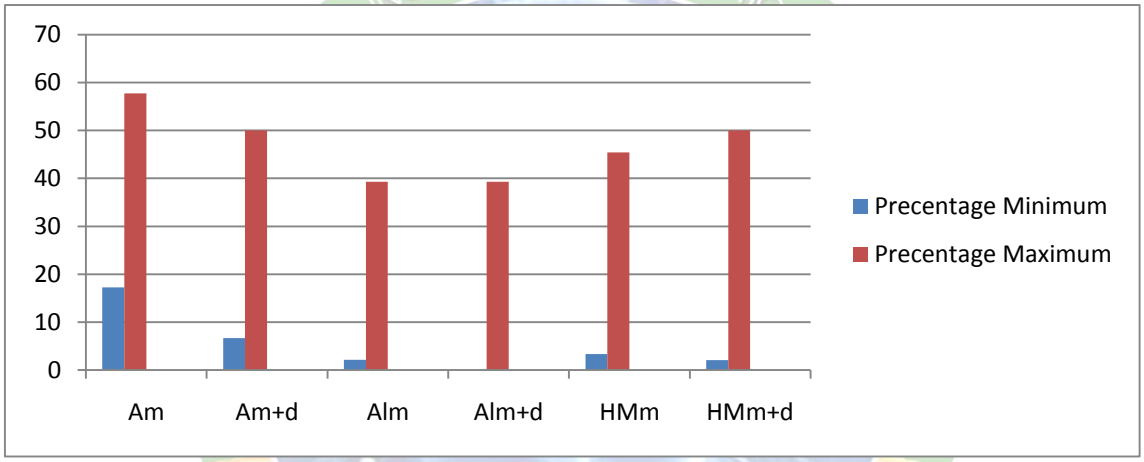

Fig. 13: Percentage reduction of glucose in different group

DISCUSSION

The present study considers the effects on patient body weight and age groups that enhances the wide applicability of drug combination by the different system of medicines. We conducted six groups consisting 10 patients in each groups and employed different system of medicines i.e., 'Group 1' (Only medicine -allopathic), 'Group 2' (Medicine + Diet), 'Group 3' (Only medicine-Ayurveda), 'Group 4' (Medicine + Diet), 'Group 5' (Only medicine- Homeopathic) and 'Group 6' (Medicine + Diet) respectively. Study period of all group was four months and diagnosed on the basis of glucose tolerance test by using Glucometer. The maximum percentage of reduction of glucose level of different groups are as follows: 'Group 1'- 57.72 %, 'Group 2'- 50 %, 'Group 3'- 39.28 %, 'Group 4'- 39.28 %, 'Group 5'- 45.45 % and 'Group 6'- 50 %.

DOI: 10.21276/IJIPSR.2018.06.07.711

CONCLUSION

From the present study it was concluded that only allopathic medicine was improved or maximum percentage of glucose level was reduced in the short period of time. Then after group treated with allopathic system of medicines with specific diet was more effective than other group.

ACKNOWLEDGEMENT

The authors giving sincerely thanks to the management of GABA Hospital, Yamuna Nagar, Haryana for constant encouragement, facilities and support toward our project.

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