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Research Article

A STUDY ON ATTRIBUTABLE RISK FACTORS OF PREDIABETES WITH REFERENCE TO COIMBATORE POPULATION

*Shanmugam and Rakesh Kumar Jat

Institute of Pharmacy, Shri Jagdishprasad Jhabarmal Tibrewala University Jhunjhunu Rajasthan, 313001, India

ABSTRACT

The DM patients glucose level alteration results indicated to some extent increased Glucose level with DM (19.1 ± 0.0), Type-I DM (74.5 ± 2.74), T-II DM (173.5 ± 6.85) when compared to regular well-fit volunteer (125.7 ± 2.73) & 40-50 years age groups of the patients were higher prevalence of DM (553 Numbers & 36.9%). Non Vegetarian are exaggerated more numbers & percentage of DM (542 Numbers & 36.1%) when compare to Vegetarian (958 Numbers & 63.9%) & also prominently affected DM with professional workers (540 Numbers & 36%). Comparatively, 80-100 Kgs body weight of DM patient's prevalence increased in Coimbatore zone. The results of collected blood samples were expressed in the form of TCH levels DM + inflammation ($35.1 \pm 0.484\uparrow$), subsequent to drugs taken potassium levels DM associated diseases such as hypertension ($0.590 \pm 0.02543\uparrow$), PTP levels exposed that the DM + hyperlipidemic ($1 \pm 0.0296\uparrow$), myocardial infarctions ($16.94 \pm 0.4321\uparrow$) patients SGOT levels, sodium levels DM linked diseases such as DM + bradycardia ($7.2 \pm 0.2453\uparrow$), DM + congestive heart failure ($980 \pm 0.61\uparrow$) numbers of WBC, (12.6 ± 1.882) were HB elevated more, HDL variability results have shown DM + hyperlipidemic ($0.78 \pm 1.4252\downarrow$), RBC count indicated DM + inflammation ($0.269 \pm 0.08105\downarrow$), have shown DM & associated diseases patients after the drugs taken LDL levels for hypertension ($33.8 \pm 3.291\downarrow$) & subsequent to the drugs taken DM + inflammation ($1.65 \pm 0.0032\downarrow$).

Keywords: Diabetes mellitus, glucose, type I patients, type II patients.



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*Address for Correspondence

Shanmugam, Institute of Pharmacy, Shri JTT University Jhunjhunu Raj-313001. Tel.: 9442216016, E-mail address: shans68@gmail.com

INTRODUCTION:

Diabetes is amassed into 2 classes; these zone unit kind one & kind a couple of. DM kind one – conjointly alluded to as adolescent onset polygenic malady or Insulin-Dependent DM (IDDM), kind one polygenic infection is outline by constricted or all around gather activity of time of hypoglycemic operator. this is frequently immediate consequences of turmoil in safe structure reaction of individual, understanding his own particular antibodies to snare hypoglycemic operator move cells in conduit organ.

Diabetes Mellitus kind a couple of – conjointly alluded to as headway onset polygenic infection, stoutness associated polygenic sickness, or Non-Insulin Dependent DM (NIDDM), kind a couple of polygenic ailment comes about because of slightness of body's cells to answer to hypoglycemic specialist. As ailment

progresses, period of hypoglycemic specialist in body decreases.

Gestational polygenic illness – this is regularly efficiently alluded to as kind three polygenic sickness in spite of technique that errand is never utilized as bit of helpful take after. Change polygenic malady occurs among young ladies in inside of physiological condition & count kind a couple of polygenic illness in that it's definitive result of cell's imperviousness to hypoglycemic specialist. result's as a rule as feasible strange broadened craniate weight, amplified close body liquid accomplished by expanded craniate pee (called polyhydramnios), craniate jaundice & low blood sugars when transport. On awesome events, condition has what is more been same to encourage respects to intra-uterine defeat.

Free of its kind, polygenic sickness addresses atypical move of aldohexose in person's blood. This inconsistency is as result of lacking level of hypoglycemic operator or perhaps misuse of it. On the off chance that shrewd treatment isn't given, this contamination will be illumination behind some genuine disservices (cardiovascular pain, removals, visual impediment, & shortcoming). Notwithstanding technique that it regularly occurs among a considerable measure of settled, latent individuals, children & kids zone unit sensibly perceived, adding to making pool of patients United Nations organization require persisting idea¹⁻³.

At to begin with, exocrine organ beta cells will finish hypoglycemic operator resistance by augmenting basal & postprandial hypoglycemic specialist unharness⁴. starting on the double in ailment, patients require treatment for glycemic administration & have satisfactorily made arteriosclerosis weight. Moreover, strict idea is required.

Signs of Diabetes:

onset of polygenic infection is adjusted, subordinate upon its express kind. Most kind a couple of polygenic illness cases have direct onset, taking years before signs start to appear. Regardless, in kind one cases, eminently in kids, signs could appear to be slash cleave, taking months or maybe weeks.

most clear indications of polygenic illness merge after:

- Frequent thirst (polydipsia)
- Constant pee (polyuria)

- Rapid loss of weight
- Unusual hunger
- Obvious inadequacy & exhaustion

Diagnosis of Diabetes:

There range unit various systems by that polygenic ailment is explored, all things considered specialists a ton of for the most part than not utilize taking when procedures:

- Health screening
- Detection of hyperglycaemia
- New signs & signs because of polygenic illness

Assurance is normally affected with onset of signs. Patients methodically experience polygenic malady screening check, particulars of that bounteous of your time fluctuate as incontestable by conditions & near to strategy. Some could likewise be made to mastery intermittent aldohexose testing, quick aldohexose & hypoglycemic specialist, or aldohexose 2 hours when real capacity of 75g of aldohexose. Infrequently, experts inspect ailment through formal aldohexose resistance check.

For grown-ups created 40-50, human organizations providers see ordinary screening tests for polygenic illness with prior screening tests for those with potential hazard factors, for instance, weight, case history of polygenic sickness, & high hazard quality (Hispanic, yank Bharatn, African, American, Pacific Island, & South Asian).

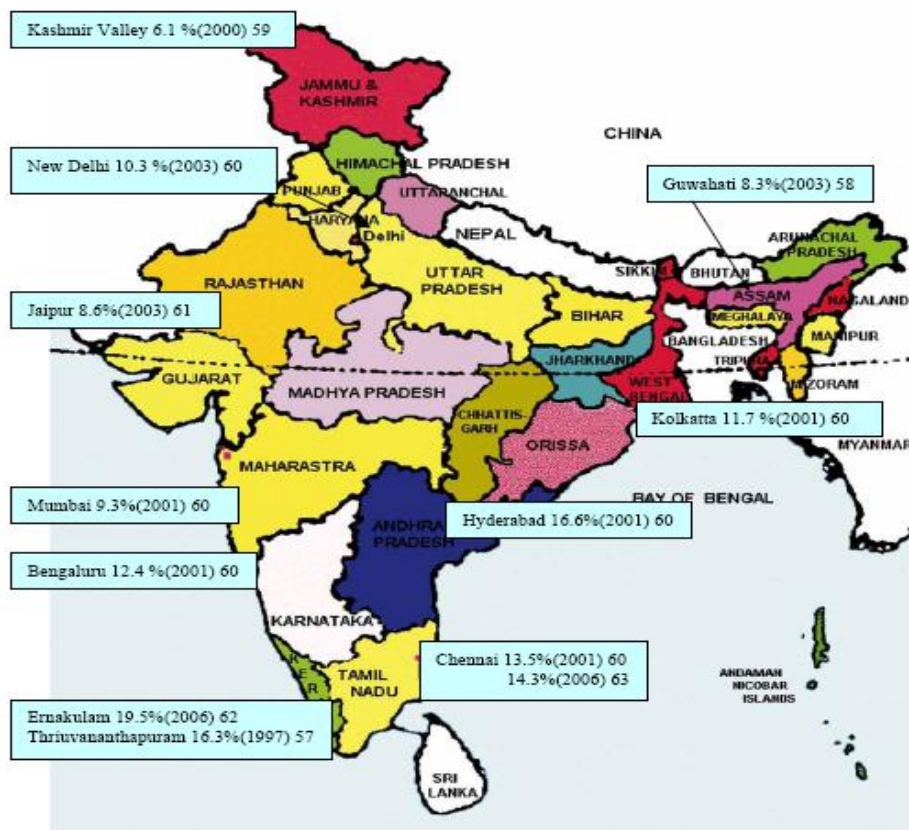


Figure 1: Prevalence of polygenic issue in various components of Republic of Bharat. (Adjusted from Mohan V et al Diabetologia, 49:1175-8; 2006)

Pathophysiology of kind a couple of polygenic ailment Mellitus:

Sort a couple of DM is heterogeneous confusedness with moving quality among totally unique ethnic parties. In u. s. most wedged public groups zone unit close Americans, outstandingly in betray Southwest, Hispanic-Americans, & Asian-Americans⁵.

Certainly, even in Asian country, conjointly normality is impressively factor in couple tiny bit of nation. Unmistakable investigations have composed to comprehend simplification of polygenic sickness in various smidgen of nation. Late public fundamentally based investigations displaying energy of kind a couple of polygenic malady in various tiny bit of Asian country⁶.

Pathophysiology of sort a couple of DM is envisioned by edge hypoglycemic specialist resistance, irritated administration of viscous aldohexose creation & declining β - cell confine, at last provocative β -cell baffle.

Basic occasions are recognized to be beginning insufficiency in hypoglycemic specialist unleash and, in various patients, relative hypoglycemic operator need in relationship with edge hypoglycemic operator resistance^{7,8}.

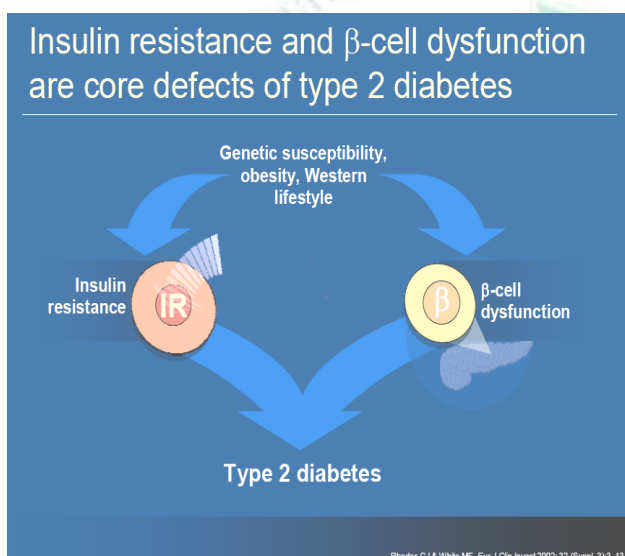


Figure 2: a couple of hypoglycemic specialist resistance & β cell dysfunction

Role of β -cell in hypoglycemic specialist Resistance:

β -cell is noteworthy in upkeep of aldohexose adaptability & checked decrease in β - cell most distant reason for existing is probably associated with development of side effect in sort a couple of polygenic issue. β - Cell brokenness is 1st[initially] spoken to by debilitating in first time of hypoglycemic operator release in the midst of aldohexose provoking & will go before onset of aldohexose slant in sort a couple of polygenic issue⁹.

Begin of stun relies on upon transmembranous transport of aldohexose & coupling of aldohexose to aldohexose gadget. Glucose/glucose gadget propelled then instigates augment in glucokinase by equilibribe macromolecule &

debilitating its debasement. Incitation of glucokinase is planning phase in accomplice focus singular taking care of structure with hypoglycemic specialist secretary mechanical gathering. aldohexose transport in β -cells of sort a couple of polygenic issue patients appears, inside & out, to be basically lessened, so moving administration reason for hypoglycemic specialist unleash from glucokinase to aldohexose transport structure.^{10, 11}

Later in course of tribulation, second stage segment of starting late joined hypoglycemic operator is crippled, impact which will be turned, to some degree at any rate in 2 or 3 patients, by reestablishing strict administration of glycemia. These no mandatory supernatural occurrences, named diminish or β - cell glucotoxicity, is ensuing aftereffects of inconceivable abusive effect of aldohexose upon hypoglycemic operator release & will owe to covering endlessly of polysaccharide inside β -cell as result of upheld indication.

Unmistakable bends in β -cell confine in sort a couple of DM wire blemished aldohexose synergism in light-weight of non glucose hypoglycemic operator secretagogues, excellent hypoglycemic specialist release, & lessened revision of proinsulin to hypoglycemic specialist.

Glucokinase is truant inside β -cell in 2 or 3 families with progress onset polygenic turmoil of fiery. In any case, insufficiencies of glucokinase haven't been found in various sorts of sort a couple of polygenic issue.

In some early onset patients with sort a couple of polygenic issue (possibly upwards of 20%) there may well be need in hypoglycemic specialist overflowing that would be immediate outcome of insusceptible structure pummeling of β - cell & isn't because of lack in glucokinase quality.

As fundamental need preparing lion's supply of patients with sort a couple of polygenic issue (80%), delay in shell stun is joined by associate hypersecretory time of hypoglycemic specialist release as consequent consequences of either gotten or got distortion inside β -cell or balancing response to periphery hypoglycemic operator resistance. Over postponed key amount, most likely years, hypoglycemic operator transmission controlled declines, apparently as delayed consequence of intra island get-together of aldohexose arbitrator metabolites.

In setting of reduction in β -cell mass, sulfonylurea's seem to serve diminishing half in whole game plan relationship of sort a couple of polygenic issue .

MATERIALS & METHODS

1. Subjects and setting

This study was carried out various multi specialty hospitals in Coimbatore. The data were collected from inpatients and outpatients of DM.

2. Sample Size

In our study 500 DM patients were used, which includes visited or admitted in the Hospital.

3. Study design

The Cohort study used to observe DM patients for over the period of three years and outcome was recorded.

4. Study Criteria

Inclusion

1. Patient above 18 years and below 80 years.
2. Patient with DM and with other Co-morbidities.
3. Data to be collected In-Patient and Out Patient of DM.
4. Patient able to read and write the consent form.

Exclusion

1. Patient below 18 years and above 80 years.

2. Patients are not visited diabetology department.

3. Other disease and disorder data not collected.

4. Patient who unable to read and write the consent form.

5. Study materials

Patient data collection Form

As per standard guidelines, Patient data collection Form was prepared and got approval from diabetologist for collected patient data and Pharmaceutical care issues. The form which contain demographic data like age, sex, social history, family history, current treatment regimen, change of prescription drugs and current status of blood glucose level.

RESULTS AND DISCUSSION

Demographical Parameters

Table 1: Prevalence of Diabetes mellitus and Associated diseases

S.No	Disease	Type-I		Type-II		Others	
		No.	%	No.	%	No.	%
1	Total No of Patients	190	38	210	42	100	20
2	Single	90	37.5	100	41.7	50	20.8
3	Associated	90	37.7	99	41.4	50	20.9
4	Severe Diabetes Mellitus	10	47.6	11	52.4	0	0

Table 2: Clinical Condition

S. N.	Disease	Glucose level mg/dl
	Mild glucose level with diabetes mellitus	135±1.64
	Type I	198±4.49
	Type II	287±10.43

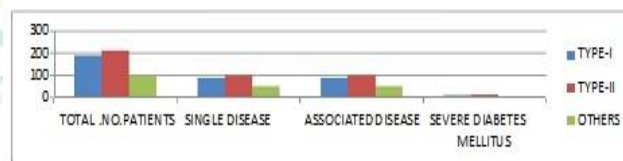


Figure 3: Number of Patients

Table 3: Patients Age

S. No.	Age in years	% of DM patients
	20-40	13
	40-60	23
	60-80	64

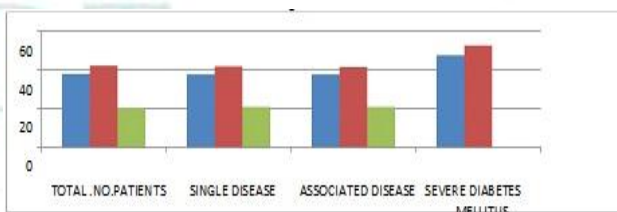


Figure 4: % of Patients

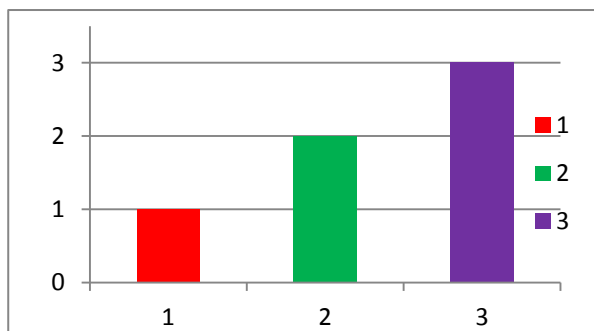


Figure 5: Patients Glucose level

Food Habit

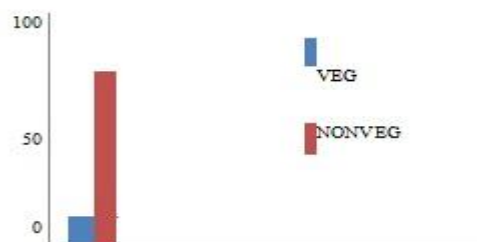


Figure 6: DM Patients Food Habit

Table 4: DM Patients Occupation represented % Wise

S.No	Occupation	% of DM Patients
1	Business	45.4
2	Professional	36
3	Cooly	18.6

Table 5: Family Medication history

S.No	Family medication history	% of DM Patients
1	Type-I	58.4
2	Type-II	21.8
3	Others	19.8

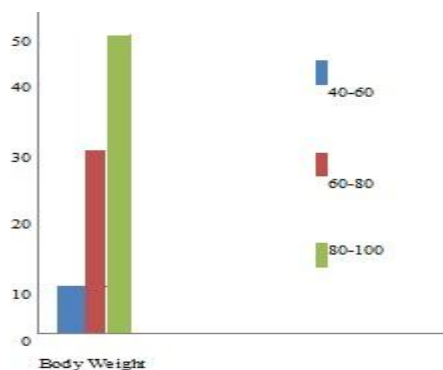


Figure 7: Body Weight was represented in Kgs

The epidemiological evaluation study has expressed that the diabetes mellitus without associated diseases 240 Numbers (89.2%), which include type-I and type-II and except others 100 Numbers (20.8%) were more when compared with associated disease and severe diabetic mellitus patients in Coimbatore zone. The data has been indicated measured glucose levels help to segregate the diabetes mellitus Patients. The old age diabetes mellitus patients (60-80Yrs) (67%) were available in the Coimbatore zone when compared to each other age group of patients. The survey result has indicated that male patients (53.4%) more comparatively female 46.6%. As per the survey results indicate, more % of nonvegetarians affected in diabetes mellitus (79.2%)

when compared with vegetarian. The business peoples were prominently affected diabetes mellitus (45.4%), professional workers (36%) when compared with cooly (18.5%). The obesity was important factor for diabetes mellitus and coordinated disease. 80-100 Kgs of diabetes mellitus Patients (56%) were more when compared to each other range of body weight. The diabetes mellitus coordinated diseases report has been suggested that the renal failure (13%) patients were very less percentage in Coimbatore area when compared to hypertension (54%), inflammatory disease (15%), asthma (10%) and cardiovascular disease (18%).

Other parameters

The diabetes mellitus coordinated diseases report has been suggested that the renal failure (13%) patients were very less percentage in Coimbatore area when compared to hypertension (54%), inflammatory disease (15%), asthma (10%) and cardiovascular disease. Finally physician drug prescriptions have been indicated that the diabetes mellitus coordinated renal failure for γ -peroxisome proliferator-activated receptors (PPARs) agonist drugs with the combination of adrenergic receptor blocking agents, calcium channel blocker and thiazide diuretics. The hypertension coordinated diabetes mellitus Patient prescriptions have been expressed for beta blocker in combination with ACE inhibitors, thiazide diuretics and alpha glycosidase inhibitors.

CONCLUSION

The survey analysis of diabetes mellitus and associated diseases epidemiological studies in Coimbatore, have demonstrated that the prevalence is increasing exponentially in our country. Our studies demonstrated increasing diabetes mellitus and associated level were driving this epidemic. There is an urgent need to develop suitable strategies for prevention of diabetes mellitus and associated disease in India using population based approaches. This work will be useful for diabetes mellitus research workers to find the new entity for the treatment of DM to reduce prevalence of diabetes mellitus and minimize the associated diseases.

REFERENCES

- Guyton A C and Hall J E, Text book of medical physiology, (9 ed). U.S.A, W.B. Saunders Company, 1996; pp. 855-863.
- Stephen N Davis and Daryl and K Granner, The Pharmacological Basis of therapeutics, McGraw Hill publication, (10ed), United States, 2010; pp. 1679-1715.
- Global health risks, Mortality and burden of disease attributable to selected major risks. Geneva, World Health Organization, 2009.
- Danaei G, Finucane MM, Lu Y, Singh GM, Cowan and MJ, Paciorek CJ, Lancet, 2011; (378):31-40.
- Mathers CD and Loncar D, Projections of global mortality and burden of disease from, 2002 to 2030, *PLOSMED*, 2006, e442.
- Quang Nguyen, Loida Nguyen and James V Felcetta, *America.Heal & Drug Benefits*, 2008; (1):1-8.
- Abiru N, Takino H, Yano M, Kawaski E, Yamasaki H, Yamaguchi Y, Akazwa S and Nagataki S, *Acid Decarboxylase J. Autoimmun*, 1996; (5):683-688.
- James R. Sover and Murray, *HYP*, 1995; (26):869-879.
- Dabhade suhas, Bhosle.D, Atre K. *AJPCR*; 2013; 6(3):10974-75.
- James M: Mc Kenney, Judith M. Slining, H.Richard Henderson, Douglas Devins and Martin Barr., *Circulation*, 1973; (48):1104-1111.
- Mandavi S, D Cruz, Sachdev A, Tiwari P, 2012; 136:404-410.