

# Increasing Incidence of Diabetes Mellitus, Systemic Hypertension and Germ Cells with Endogenous Estrogen

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## Abstract

**Background:** Era of contraception, abortions, [20<sup>th</sup>, 21<sup>st</sup> centuries] implemented as family welfare schemes, witnessed increased global incidence of Type 2 diabetes mellitus, systemic hypertension. **Objectives:** Altruistic association of contraception [if any], with increasing diabetes mellitus, systemic hypertension, was sought after. **Methods:** In 2012, retrospective analysis of, prevalence of diabetes mellitus, systemic hypertension, in 350 patients of 20 - 35 years, 35 - 50 years, >50 years, age groups, data collected by convenient, stratified random sampling, from different geographical locations, between 2003-2012 and its association with presence, absence of contraception, abortion was undertaken; simultaneously, serum estrogen levels obtained from 105 patients, were also analysed. **Results:** 10 - 45 fold increase in Type 2 diabetes mellitus was seen in contraceptive users of >20 years to >50 years; 15 - 50 fold increase in incidence of systemic hypertension was seen in contraceptive users of >20 years to >50 years. Endogenous estrogen was reduced below normal in 75% of contraceptive users, and 25% of contraceptive users had low normal serum estrogen. Cholesterol deprived diet, due to decreased synthesis of endogenous estrogen, androgen also was associated with 50% increase in diabetes mellitus, systemic hypertension. **Conclusion:** Concept is acquired contraception, abortion status, with smashed fragmentation of germ cells, reduced endogenous estrogen, androgen, results in defaulted genomic repertoire, deranged cell metabolism, increased incidence of diabetes mellitus, systemic hypertension as part of metabolic syndrome. Contraception reversal declined the diseases as a cause and effective phenomenon.

## Keywords

Fragmented Germ Cells, Autologous Germ Cell's Replant, Reduced Endogenous Estrogen,

## Global Contraception, Abortion, Contraception Reversal

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### 1. Introduction

People in about 1989 complained of weight gain, low back aches, were detected to have diseases, including diabetes mellitus, systemic hypertension, and were attributing to aftermath of tubectomy-puerperal permanent sterilisation, though it was ignored by medical personnel, since contraception was presumed to be without side effects, [permitted by Life Sciences, without evidence base or studies prior to or after implementation of family welfare schemes, implemented without therapeutic indication], and the contraceptive procedures as such were uneventful. Global incidence of diseases including diabetes mellitus, systemic hypertension was rising; hence an altruistic analysis was planned to assess, if any correlation existed with contraception and rising incidence of diseases namely diabetes mellitus, systemic hypertension.

### 2. Methods

As advised by a scientist, 30 sample size being essential for statistical analysis, minimum of 30 samples was planned for, in each of 3 age groups, namely 20 - 35 years, 36 - 50 years, >50 years; though people from the community are visiting the hospital, analysis of hospital patients alone can create a bias, hence data from the community, hospital, health screening camps, of different geographical locations were included; data from each person depicted, prevalent diseases, status of contraception, hysterectomy, type of oil ingested, life style, level of nutrition, presence of anemia; the data was tabulated as prevalent diseases, matched against the variables in each age group; retrospective bioinformatics analysis was done, by plotting histograms for the 3 age groups and cumulative graphs for each disease in 2012; an example of tabulation of the data is provided in the supplementary file.

In 2003 house to house survey in the community, spread over 3 weeks, was conducted by the corresponding author, to collect data of prevalent diseases of 100 people; the people who were present during the survey were included at random, by convenient sampling into the 3 age groups namely 20 - 35 years, 35 - 50 years, >50 years, to include a minimum of 30 people in each age group; serum estrogen estimation was done for 12 people as per their request; the reduced estrogen levels [5 - 8 pgm] found in young contraceptive users, was the eye opener, leading to further data analysis.

In 2004 data of 93 hospital patients was collected over a period of 6 months, including diseases prevalent, contraception status, life style, nutrition, type of oil ingested, level of hemoglobin and were assigned to the 3 age groups by stratified random sampling with a minimum of 30 patients in each age group; serum estrogen estimation was done for all 93 patients; the data was tabulated matching diseases against status of contraception and other variables; one patient was a foreign national.

In 2011, 96 people [43 couples] working in different states of our nation had attended a health screening camp conducted in the community, spread over 3 days and their data was analysed after assigning into the 3 age groups at random, for association of diseases with status of contraception, hysterectomy and other variables; effect of contraception in both partners after contraception also could be analysed; none had sedentary life style, low nutrition or anemia or had worn tight attires around the pelvis.

In 2012, data of 61 hospital patients including a foreign resident, from another geographical location, was collected over a span of 6 months, assigned to the 3 age groups at random and was pooled to the other data from 2003, 2004, 2011 and retrospective bio informatics analysis was undertaken for the 350 patients in 2012, by plotting histogram for the 3 age groups and cumulative graphs for each disease.

Every participant was informed about their data being included for study purpose and the concerned hospital authorities were also informed; an engineering college student did the bio informatics analysis as his project.

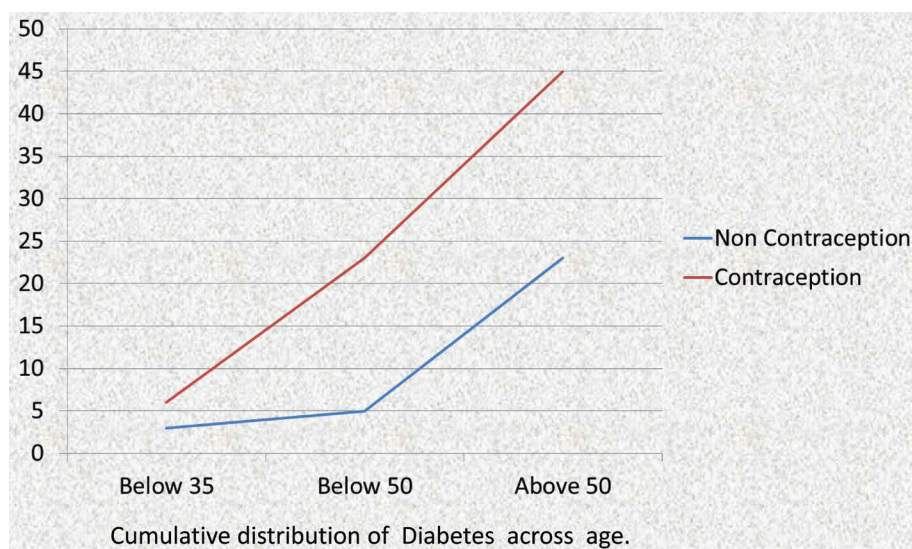
### 3. Results

Variables like nutrition, lifestyle, presence of anemia, tight attires around pelvis were nullified, since none of them were malnourished, oranemic, or wore tight attires around the pelvic region; for all of them, life style was rated as moderate exercise.

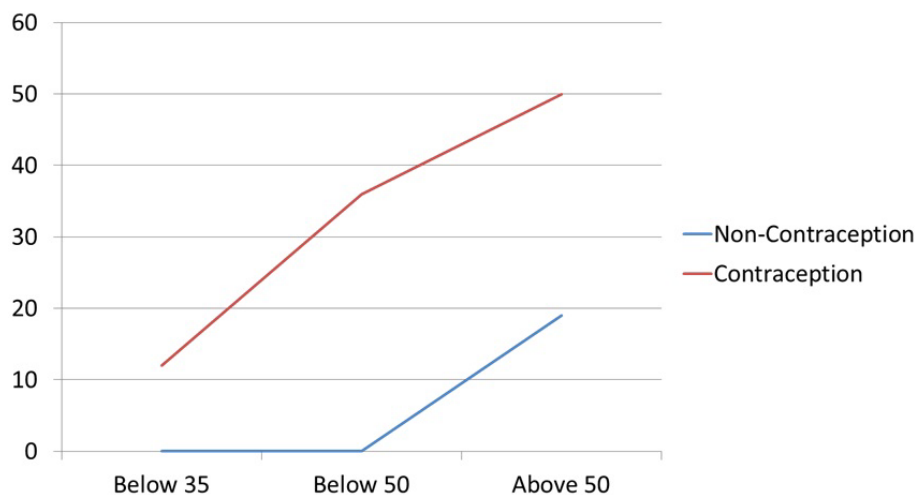
Cholesterol deprived diet—oil without fatty acids, sunflower refined, bleached oil consumption showed a 50% increase of osteoporosis, 5 fold increase in diabetes mellitus in young adults before marriage [*i.e.* in our country premarital sex (requiring contraception) is prohibited, considered as adultery, but contraception is practised in life partners, ~98% as part of family welfare schemes, to reduce population, human race, without evidence base for safety or therapeutic indication].

Contraception, abortion was associated with 10 - 45 fold increase in Type 2 diabetes mellitus (**Figure 1**); 15 - 50 fold increase in systemic hypertension (**Figure 2**), among >20 years to >50 years of age; there was absolute correlation *i.e.* the people who did not use contraception did not develop diabetes mellitus or systemic hypertension in young age of 20 - 50 years; both partners who were using contraception had diseases including diabetes mellitus, hypertension-color figures-supplementary files.

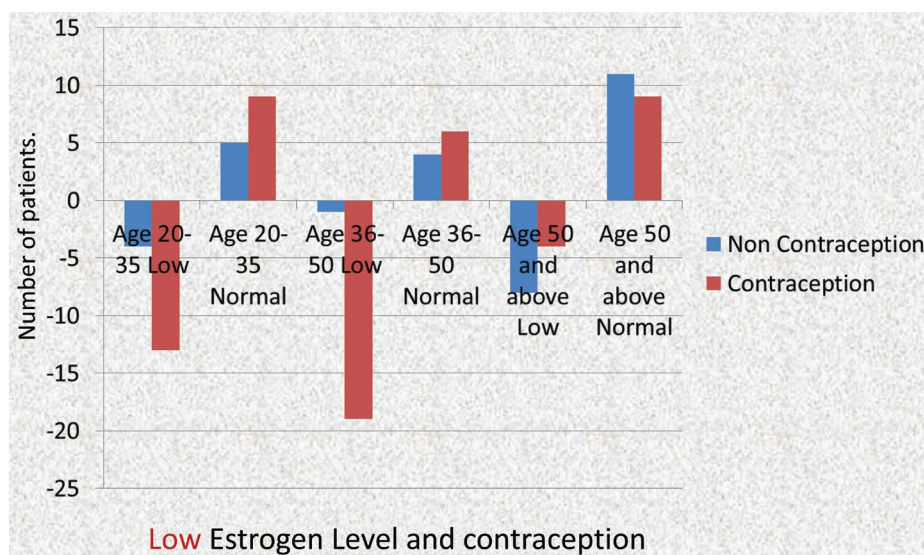
Endogenous estrogen was grossly reduced to ~5 - 8 pgm in 75% of people using contraception: **Figure 3**, in 20 to <50 years age group; after hysterectomy estrogen had reduced to as low as 0.4 pgm, suggesting endogenous estrogen, androgen surveillance dependent cell-genomic repertoire, differentiation followed by controlled multiplication of cell cycle, cell metabolism defaults, leading to increased incidence of degenerative diseases including diabetes mellitus, systemic hypertension; any form of contraception results in smashed fragmentation of germ cells leading to this decrease in endogenous hormones.



**Figure 1.** Diabetes mellitus, contraception.



**Figure 2.** Systemic hypertension, contraception.



**Figure 3.** Reduced endogenous estrogen.

Contraception reversal as a cause and effect phenomenon-figure-supplementary file, resulted in decline in the diseases, since the hormones returned to 79.9% of the normal value for the corresponding age at reversal, as the germ cells destruction halted, akin to autologous germ cells replant effect, enabling effective therapy [medical miracle-deranged cell metabolism restored] only ~30 people we could recanalise the fallopian tubes-[due to non existing policies, which need to be framed, as science opens our comprehension, towards etiopathogenesis].

Contraception reversal is not possible in hysterectomy, orchidectomy hence should be reserved for cancer of the uterus, testes and postpartum hemorrhage

#### 4. Discussion

Diabetes mellitus [1] refers to a group of common metabolic disorders, that share the phenotype of hyperglycemia; several distinct types of diabetes mellitus are complex interaction of genetic and environmental factors; etiology includes, factors contributing to reduced insulin secretion, impaired glucose utilization, increased glucose production; metabolic dysregulation of diabetes mellitus leads to secondary pathophysiologic changes in multiple organ systems.

In United States of America diabetes mellitus is the leading cause of end stage renal disease, non traumatic lower extremity amputations and adult blindness; also predisposes to cardio vascular diseases; increasing incidence of diabetes mellitus, leading cause of morbidity, mortality for the foreseeable future is a global concern.

30 million cases of Type 2 diabetes mellitus reported in 1985, has increased to 285 million diabetes by 2010, International Federation of Diabetes Mellitus projects 438 million by 2030; Type 2 diabetes mellitus is increasing rapidly; around 1975-1995 global contraceptive practices were implemented effectively, adopted stealthily, correlating chronologically with increased incidence of diseases, including diabetes mellitus, systemic hypertension.

Broad categories of classification of diabetes mellitus as Type 1, Type 2, is based on pathogenesis of abnormal glucose homeostasis; Type 1-near total insulin deficiency, Type 2-variable degrees of insulin resistance, impaired insulin secretion, increased glucose production; many people in t2 diabetes mellitus eventually require insulin therapy; though Type 1 diabetes mellitus occurs in <30 years-an autoimmune  $\beta$  cell destructive process can develop at any age; 5% - 10% of people who develop diabetes mellitus >30 years of age have Type 1 diabetes mellitus, now diagnosed frequently in children, young adults particularly in obese adolescents; maturity onset diabetes of the young is a subtype with autosomal dominant inheritance, early onset <25 years, with impairment of insulin secretion, due to acquired mutations in hepatocytes nuclear transcription factor 4 $\alpha$ -MODY 1, 1 $\alpha$ -MODY 3, 1 $\beta$ -MODY 5, glucokinase-MODY 2, insulin promoter factor 1-MODY 4, neuro D1-MODY 6.

Glucose homeostasis reflects a balance between hepatic glucose production, peripheral glucose uptake and utilization; insulin is the important regulator of this metabolic equilibrium, once insulin is secreted into the por-

tal venous system, 50% is degraded in the liver, 50% enter the systemic circulation where it binds to receptors in target sites, which recruits intracellular signaling of molecules, such as insulin receptor substrates.

*Pandemic increase in Type 2 diabetes mellitus is observed with obesity, life style changes, urbanization; in 2000 150 million had diabetes, and the number has doubled in 2010 [2].*

The concept is, contraception, abortion result in unaware smashed fragmentation of germ cells to acentric fragments, ringchromosomes, chromatid breaks [3], with associated reduced endogenous estrogen due to negative feedback signals that are mediated to hypothalamo pituitary axis by endorphins probably; reduced endogenous estrogen, androgen surveillance results in defaults of [4] genomic repertoire—embryo like healing of tissue in injury, faults in cell differentiation followed by controlled multiplication of cell cycle, cell metabolism [5]—more of apoptosis than regeneration—so islets'  $\beta$  cell mass degenerate, acquired mutations occur at the receptors—insulin resistance, leading to increase in Type 2, maturity onset diabetes of the young; fragmented germ cells [by contraception] are identified as foreign, leading to autoimmunity in contraceptive users, including destruction of  $\beta$  cells—Type 1 diabetes mellitus, with near total insulin deficiency has increased; many people in Type 2 diabetes also require insulin eventually; anti insulin antibodies are also noticed; obesity (without secondary sexual character build) follows, reduced endogenous estrogen, with associated decrease in thyroid, [6] growth hormone, as a result of deranged genomic repertoire; so obesity, diabetes mellitus, systemic hypertension are increasing with contraception implementation due to reduced endogenous estrogen, androgen status, as a result of agonizing destruction of germ cells by acquired contraception; obesity of contraception is associated with receptor defect responding better to metformin youth, adolescents, children, individuals fed on cholesterol deprived diet—refined, bleachedoil, sunflower seed oil, (with 6 times less vitamin E, essential fatty acids, than ground nut oil), with resultant decreased synthesis of endogenous estrogen, androgen, also develop diabetes mellitus due to defaults, mutations in cell cycle, requiring normal endogenous estrogen, androgen surveillance [endogenous estrogen, androgen on whose surveillance, cell cycle is dependent, is synthesized from cholesterol, receiving the name steroid hormone—*i.e.* derived from chole sterol of the oil, obtained from nuts and seeds, harboring seedlings, with phyto estrogen, growth trophic factors, essential fatty acids, high, low density lipoproteins, necessary to support life of the baby plant]. Olive oil has the highest fertility index, virgin edible oil e.g. coconut oil, gingi-li oil, palmoleinoil, vegetable oil, ground nut oil with their cholesterol is essential to prevent incidence, complications of diabetes mellitus, since we need 46 types of essential fatty acids for our metabolism.

Contraception reversal with resultant halt in germ cells fragmentation, akin to autologous germ cells replant, effect, associated return of 79.9% of endogenous estrogen corresponding to their age, restores the defaulted cell cycles with decline in diseases including diabetes mellitus.

Auto immune destruction of cells including  $\beta$  cells is also associated with consumption of fish without scales, gills which either by their toxins-hapten mediated or molecular mimicry trigger auto immunity, pancreaticcancer, immune mediated nephritis, demyelination, urticaria, diabetesmellitus, gastro intestinal neoplasms, angio neurotic edema; germ cells exposure to the raw endometrial bloody surface (by contact) during the 7 days after last menstrual period [wherein the endometrium shedding for 3 - 4 days, has to be replenished], 45 days after male baby delivery, 90 days after girl baby delivery, [since girl baby with xx, requiring larger placenta to synthesise estrogen, which is 2 - 3 steps later than androgen, with longer lochia discharge up to 35 - 40 days, requiring 90 days—longer interval for the detached raw placental surface, to be replenished with endometrium], triggers auto immunity, destruction of varied cells, including  $\beta$  cells, leading to Type 1 diabetes mellitus, endometriosis [since the patchy regenerated endometrium can be sucked in through the tubes to the peritoneal cavity, deeper layers of uterine wall etc. during the interplay of neurohumoral factors of contact] *but the proportion is less, compared to global contraception, abortion mediated autoimmune destruction.*

*Obesity is also a phenomenon, seen after contraception, due to dysregulation in thyroid, growth hormones dependent, on endogenous estrogen and resultant defaulted genomic repertoire; hence obesity, diabetes mellitus, hypertension, stem from the pathologically acquired contraception, abortion and are associated; not obesity leading to diabetes mellitus; metabolic syndrome is the result of reduced endogenous estrogen, androgen, secondary to pathologically acquired, smashed fragmentation of germ cells, by all forms of contraception.*

Systemic hypertension is one of the leading causes [7] of global burden of disease; 7.6 million deaths [13% - 15% of the total] and 92 million disability adjusted life years, worldwide, were attributable to high blood pressure in 2001; in industrialized societies, blood pressure increases steadily as age increases.

Cardiac output, peripheral resistance are the two determinants of arterial pressure; effect of sodium on blood pressure depends upon the provision of sodium +chloride; non chloride salts of sodium have little or no effect on

blood pressure.

$\alpha_1$  adrenergic receptors increase tubular reabsorption of sodium,  $\alpha_2$  receptors when activated inhibit further norepinephrine release; antihypertensives inhibit  $\alpha_1$  or act as  $\alpha_2$  agonists;  $\beta_1$  receptors increase cardiac output by increasing strength of cardiac contraction; *in chronic reduction of neurotransmitter substances, adreno receptors are upgraded, increase in number as compensation with increased responsiveness to the neurotransmitter; reflexes modulate blood pressure on a minute to minute basis*; one arterial baroreflex is mediated by stretch sensitive sensory nerve endings in the carotid sinuses, aortic arch; rate of firing of these baroreceptors increases with arterial pressure, results in decrease in sympathetic outflow, decrease in blood pressure, heart rate; this is a primary mechanism of rapid buffering of acute fluctuations of arterial pressure that may occur during postural changes, behavioral or physiologic stress and changes in blood volume; *however the activity of baroreceptors decline and the baroreceptors are reset for higher blood pressures.*

Wantonly practiced contraception [without any therapeutic indication, permitted by life sciences] with its associated, agonising smashed fragmentation of germ cells, reduced endogenous estrogen surveillance-required mandatorily for every cell cycle, its differentiation, controlled multiplication, genomic repertoire, leading to degeneration, auto immune destruction mediated pathogenesis of for e.g. down, up regulatory mechanisms of adrenoceptors, arterial baroreflex, baroreceptor activity with increasing incidence of systemic hypertension at younger ages and the consequent complications.

Renin angiotensin-aldosterone contributes to regulation of arterial pressure primarily via the vasoconstrictor properties of angiotensin-2 and sodium retaining properties of aldosterone; renin is an aspartyl protease synthesized primarily in the afferent arteriole, cleaves the angiotensinogen to angiotensin 1-inactive decapeptide, converted to active octa peptide angiotensin-2 by a converting enzyme primarily, not exclusively present in the pulmonary circulation, which also cleaves a number of other peptides and thereby inactivating the vasodilator bradykinin; acting through angiotensin-II Type-1 receptors [AT1] on cell membranes it's a potent pressorsubstance, the primary tropic factor for the secretion of aldosterone by the adrenal zonaglomerulosa and a potent mitogen that stimulates vascular smooth muscle cell and myocyte growth; angiotensin II may play a role in the pathogenesis of atherosclerosis through a direct cellular action on the vessel wall; angiotensin II Type 2 [AT2] receptor is widely distributed in the kidneys and has opposite functional effects of the AT1 receptor; AT2 receptor improves vascular remodeling by stimulating smooth muscle cell apoptosis and contributes to the regulation of glomerular filtration rate; AT1 receptor blockade induces an increase in AT2 receptor activity; renovascular hypertension in addition to renin secreting tumors is a renin mediated form of hypertension; renin angiotensin II are synthesized locally in many tissues, including the brain, aorta, adrenals, ovaries, testes, head, kidneys, leucocytes, uterus, spleen and skin; aldosterone has effects on nonepithelial targets; aldosterone, mineralo corticoid receptor activation, induces structural alterations in heart, kidney, blood vessels leading to nephrosclerosis, myocardialfibrosis, vascular inflammation and remodeling.

Vascular radius, compliance of resistant arteries are also important determinants of arterial pressure; resistant to flow varies inversely with the fourth power of the radius; consequently small decreases in lumen size, significantly increase the resistance; structural, mechanical or functional changes may reduce the lumen diameter of small arteries and arterioles, hypertrophic or eutrophic vascular remodeling results in decreased lumen contributing to increased peripheral resistance; *apoptosis, low grade inflammation, vascular fibrosis, contribute to remodeling; vessels with a high degree of elasticity, can accommodate an increase of volume, with relatively little change in pressure, whereas in a semirigid vascular system, a small increment in vascular volume induces a relatively higher increment of pressures; hypertensive patients have stiffer arteries*; recent evidence suggests that arterial stiffness, has independent predictive value for cardio vascular events; clinically number of devices are available to evaluate arterial stiffness or compliance including ultrasonogram, or magnetic resonance imaging.

95% of patients with hypertension, an underlying cause cannot be found, hence it's called as essential hypertension; inelasticity is multifactorial [8]; practical definition of hypertension is the blood pressure, at which benefits of treatment, outweigh the risks of costs and hazards; there's little evidence, stress causes hypertension.

Contraception, abortion with its smashed fragmentation of germ cells, associated reduced endogenous estrogen, androgen, resultant faults in genomic repertoire, faults in cell differentiation, followed by controlled multiplication, faults in cell cycle of apoptosis, regeneration, cell metabolism, leading to degeneration, auto immune destruction [fragmented germ cells are identified as foreign, leading to auto immunity, against every cell which has identical genome of zygote, germ cells] of cells including angiotensin I, II, receptors, renalarterioles, tubules,

blood vessel walls, leading to more of fibrosis than cell regeneration, stiffness, inelasticity, resultant soaringly increased incidence of systemic hypertension and its complications.

Contraception reversal as a cause and effect phenomenon due to halt in germ cells destruction, return of viability of germ cells, restoration of endogenous estrogen by 79.9% of their normalcy, restoration of cell genomic repertoire leads to decline in diseases including diabetes mellitus, hypertension, obesity by 79.9%; consumption of oil with cholesterol, essential fatty acids, life factors leading to synthesis of endogenous estrogen, androgen and wearing loose fitting garments around pelvis to reduce the thermogenic destruction of germ cells, also regress the degenerative diseases.

## 5. Conclusions

Pandemic of Diabetes mellitus, systemic hypertension, with its associated morbidity, mortality is a global concern; era [20<sup>th</sup>, 21<sup>st</sup> centuries] of contraception, abortion [permitted by life sciences] has witnessed, alarming increase in incidence of diseases, including diabetes mellitus, systemic hypertension-mystery of unsolved puzzle, in spite of advancing global technologies, epidemiology, comprehensive implementation of health care.

Contraception, abortions, implemented without therapeutic indication, as guillotine protocol, presumed to have no side effects, without evidence for need or safety *i.e.* no studies prior to or after implementation of family welfare schemes, results in smashed fragmentation of germ cells, as evidenced by chromatid breaks, ring chromosomes, fragmented chromatids and associated reduced endogenous estrogen, androgen affecting both partners, leading to defaulted genomic repertoire, cell cycle of differentiation, controlled multiplication, deranged cell metabolism, resulting in metabolic syndrome; fragmented germ cells initiate auto immunity against any cell component.

Hence degeneration, auto immune mediated destruction of  $\beta$  cells, insulin receptors, acquired mutations in receptors, cells as part of degeneration, defaulted genomic repertoire, contributes directly to the increased incidence of diabetes mellitus.

Contraception, abortion associated, defaulted genomic repertoire, cellcycle, cellmetabolism, auto immune mediated, down regulation, degeneration of arterial baroreflex, baroreceptor activity, adreno receptors, angiotensin I, II receptors, vesselwalls, producing inelasticity, more of fibrosis, stiffness leading to systemic hypertension and its complications.

Contraception is associated with 10 - 45 fold increase in incidence of diabetes mellitus, 15 - 50 fold increase in systemic hypertension among 20 - >50 years age groups.

Contraception reversal results in 79.9% decrease in diseases.

Obesity, diabetes mellitus, systemic hypertension are acquired pathologies, associated with reduced endogenous estrogen, androgen status, secondary to contraception, abortion, cholesterol deprived diet.

Virgin Oil with its essential fatty acids, cholesterol consumption leads to decrease in diseases with regeneration of  $\beta$  cell mass, receptors of insulin, baro receptors... cell metabolism, cycle, since virgin oil's cholesterol is converted to our steroid hormones including estrogen, androgen.

The subset of population, who are not using contraception, retain the normal reserves of insulin, have less anti insulin factors; if they develop diabetes mellitus >50 - 70 years of age when the innate hormone-estrogen, androgen dips to 15 pgm, they respond well to small doses of oral hypoglycemic agents; secondary failure of drugs is less prevalent among patients without contraception; for similar reasons of defaulted genomic repertoire with contraception, diabetic complications leading to end organ damage are higher in patients on contraception, though in this study it's not included.

## Key Points

- Contraception, abortion is associated with 10 - 45 fold increase in diabetes mellitus, 15 - 50 fold increase in systemic hypertension among 20 - 50 years age groups.
- Cholesterol, essential fatty acids deprived diet [oil without cholesterol-refined, bleached, sunflower oil] leads to 5 fold increase in diabetes mellitus, hypertension and its complications.
- Contraception, abortion results in smashed destruction of germ cells, leading to degeneration, auto immune destruction of  $\beta$  cell mass, receptors, resulting in impaired insulin secretion and increased insulin resistance.
- Contraception associated reduced endogenous estrogen, androgen [affecting both partners] resultant defaulted genomic repertoire, degeneration of baroreceptors, adreno receptors, cells, vessel walls, elasticity, increasing fibrosis, stiffness, leading to systemic hypertension.

- Reversal of contraception, regresses diseases, metabolic syndrome, by 79.9% as a cause and effect phenomenon—*autologous germ cells replant effect*.

## Conflicts of Interest

None declared.

## Acknowledgements

Mr. Jobin John—an Engineering College student of Karunya University planned the bioinformatics figures to enable retrospective analysis. His present contact address: Jobin John, B.Tech (Bioinformatics) ZIFO Technologies Pvt. Ltd. No. 21A, Anna Salai, Little Mount, Saidapet, Chennai—15. Email: [jobinjohn@karunya.edu.in](mailto:jobinjohn@karunya.edu.in), [Jobinjohn1990@gmail.com](mailto:Jobinjohn1990@gmail.com).

## References

- [1] Alvin, C. (2012) Powers: Diabetes Mellitus; Harrison's Principles of Internal Medicine. 18th Edition, 2968-2970, 2973.
- [2] Frier, B.M. and Fisher, B.M. (2002) Diabetes Mellitus; Davidson's Principles and Practice of Medicine. 19th Edition, 642.
- [3] Bruce, C.G. (1987) Progressive Systemic Sclerosis; Harrison's Principles of Internal Medicine. 11th Edition, 1429.
- [4] Mendelsohn, J. (1987) Tumor Cell Biology, Biochemistry; Harrison's Principles of Internal Medicine. 11th Edition, 423.
- [5] Mendelsohn, J. (1987) Principles of Neoplasia; Harrison's Principles of Internal Medicine. 11th Edition, 422.
- [6] Jean, D.W. (1987) Principles of Endocrinology: Growth Hormone Regulation; Harrison's Principles of Internal Medicine. 11th Edition, 1701.
- [7] Theodore, A.K. (2012) Systemic Hypertension; Harrison's Principles of Internal Medicine. 18th Edition, 2042-2043.
- [8] Newby, D.E., Grubb, N.R. and Bradbury, A. (2010) Cardiovascular Diseases; Davidson's Principles and Practice of Medicine. 21st Edition, 606.