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Original Article

NCDS related Early Ageing & Homoeopathy

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Abstract: The life expectancy of an Indian is 70 years as per the census 2011. Currently, the challenge is to have not only a quantitative life of 70 years but also of quality & dignity. This can be achieved through all means to have reduced morbidity. Achieving less morbid status is challenged by the ever & gradual increase of the Diabetic Epidemic in India. The Diabetic affected individuals are at a higher risk of ageing because of the combo of Non Communicable Diseases (NCD) like Diabetes & Hypercholesterolemia.

The article discusses the current status of the diabetes epidemic & the related physiology & pathology that accelerates ageing process in the body of the above-mentioned combo affected individuals. The burden of the Diabetes in India & its consequences through the early ageing process is also discussed in the article. The issue of aging is also highlighted through the United Nations Fund for Population Activities (UNFPA) report on aging in India that was released in September 2023.

Finally, the article discusses the role of Homoeopathy of the Ministry of AYUSH in reducing the burden of early ageing due to Diabetes. A treatment protocol based on Homoeopathy is suggested as per the lines of the pathology & the altered physiology in the body that eventually leads to early ageing in the body. The application of Homoeopathy is deciphered through the NFHS 5 data & data regarding current Homoeopathy users in the general population in India.

The triangle of benefit of Homoeopathy is highlighted in the article and each of these angles is cost effectiveness, clinical effectiveness & no side effects. All these three attributes of Homoeopathy fits into the criteria of Essential Medicines (EM) in India & the large scalability in which the system can be applied easily. The Homoeopathic system also fits into the criteria of National List of Essential AYUSH Medicines (NLEAM) that is developed on the lines of National List of Essential Medicines (NLEM).

Keyword: Homoeopathy, ageing, NCDS

Introduction: Uncontrolled blood sugar levels play havoc in the body thereby negatively affecting various parts of the body. The hyperglycemic condition leads to uncontrolled glucose levels that inturn leads to insulin resistance thus affecting the secretion of the hormone that helps regulate blood sugar. This process strains the pancreatic beta cells of the body. This cyclic process makes the cells overactive & eventually leading to cellular failure. High & uncontrolled blood sugar levels trigger one of the primary mechanisms in the body known as Glycation. Glycation damages vital body parts such as kidney, eyes, nerves & blood vessels. [3,4,26]

The process of glycation involves attachment of glucose molecules to proteins thus representing a non enzymatic modification of proteins. The mechanism of this

attachment occurs as elevated levels of glucose that binds with proteins found in some particular tissues. These tissues encompass collagen & other proteins that contribute to bodily structures, vessel integrity & tissue composition. Actually, these are long lived proteins as they do not turn over fast. These are found in vessel walls, cell basement membranes, kidneys, lenses, retinas. High sugar levels start the process of slow alteration of these long lived proteins. [3,4,26]

High blood sugar helps the glucose molecules to attach to these proteins there by forming Advanced Glycation End products (AGEs) that integrate with these long lived proteins. AGEs connect with immune cells called macrophages there by making these macrophages persistently active. Persistent activeness sparks continuous inflammation which starts the triggering of the release of Growth Factors (GF). [3,4,26]

Thereafter, these GFs lead to the deposition of extracellular matrix. These are substances found in the extracellular spaces or spaces surrounding the cells. Filling up of the extracellular spaces with these substances make the cells harder & they become hardened. [3,4,26]

The following sections elaborate on the patho-physiology of the processes in the various organs.

Patho-Physiology

The largest organ of the body is the skin. The skin has the most elasticity as an organ. The flexibility of the skin is attributed to the hydrated condition of the extracellular matrix. However, as this matrix hardens as a result of accumulation of these excess materials, the elasticity of the skin turns to rigidness of the skin. This is why individuals with uncontrolled sugar levels appear older than their actual age. [3,4,26]

Similar process of hardening occurs within the inner layers of the blood vessels called as 'Tunica Intima'. High blood sugar is usually associated with elevated cholesterol that also contributes to hardness as an alternative route. Hence, the bi-pronged attack of atherosclerosis & hyperglycemia accelerate the process of ageing in the body. [3,4,26]

In atherosclerosis, the hardening is due to accumulation of cholesterol happens beneath the walls of the blood vessels. Hence, a clinician has to do a differential diagnosis of hardening of cells to ascertain whether the hardening is due to high blood sugar or high cholesterol. The clinician finds that the manifestation or unfolding of hardening is in multiple ways. Here, homoeopathy passes the test with flying colors as the therapeutic system has drugs for each of the manifestation of hardening. [3,4,26]

Coming back to 'Tunica Intima', we find that the glucose enters the blood stream within the 'Tunica Intima' & attaches to proteins thus contributing to extracellular deposition, tissue hardening which forms a mesh like structure. Even the un-glycated proteins are entrapped & embedded in this mess like structure. The entire process leads to thickening of the extracellular matrix, blood vessel walls, basement membranes of the kidneys as well thus contributing to hypertension. [3,4,26]

Another particular concern among diabetics arises when the neuro-vascular structure of the neck area & carotid sinus area undergoes atherosclerosis. The process occurs when a sticky plaque builds up inside arteries & becomes atherosclerotic. The transformation process signals the brain thereby indicating that the blood pressure has become abnormal or the process of hypotension occurs in the body. In response to this phenomenon, the brain

increases blood pressure which eventually leads to hypotension in the body. [3,4,26]

All these events leads to various complications including formation of clots, the buildup of plaques, the narrowing of blood vessels, cardiovascular events, strokes, damage to retinal blood vessels, haemorrhages & severe issues related to the kidneys. The bottom line cause of these issues is attributed to non-enzymatic glycation of 'Tunica Intima'. The entire process not only entangles proteins but also triggers inflammation which fosters the development of atherosclerosis. [3,4,26]

As mentioned above, severe issues also manifest in the kidneys. The glycation process leads to thickening of the basement membrane within the kidneys where mesangial cells regulate blood pressure. These cells contribute to contraction of glomerular capsule that is a key structure in the kidney's filtration process. As a result of glycation of these mesangial cells, glucose influence triggers damage to these cells. This process hampers blood supply to the kidney which prompts the kidney to generate more 'Renin'. This is the hormone that regulates blood pressure in the body. [3,4,26]

As a result, a cycle of damage ensues that accelerates kidney issues in the body. Glycation, the process that leads to glucose binding to proteins is the main culprit in people with diabetes as they constantly battle with kidney diseases & high blood pressure. [3,4,26]

Epidemiology of Diabetes

India has the second largest number of diabetics worldwide. According to an estimate, over 74 million Indians were diagnosed with diabetes in 2021 & this is expected to rise to over 124 million by 2045. Type 2 diabetes accounts for over 90% of all diabetic cases in India. [1]

A recent study by the health ministry indicates that around 101 million people in India, comprising 11.4% of the population have diabetes. Additionally, 136 million people or 15.3% may have pre-diabetes, which can progress to diabetes within five years. This situation is alarming & can be described as a 'diabetes epidemic'. Diabetes affects approximately one in every 11 adults globally. [2]

A study on higher risk of biological ageing with type 2 diabetes in middle aged Indians concluded that oxidative stress & chronic inflammation induced by type 2 Diabetes Mellitus may aggravate the natural ageing process & may be responsible for accelerating biological ageing in middle aged Indians. [5]

Another study based on NFHS 5 data that dealt with socio-economic inequality in Awareness, Treatment & Control (ATC) of diabetes among adults in India found that overall; the ATC of diabetes is low in India. It is especially low in the poorer & the less educated individuals. The study suggested targeted interventions & management that can reduce the diabetes burden in India. [7]

United Nations Ageing Report

The issue of ageing is critical in India & the dangers of early ageing due to NCDs further escalate the issue in India. The United Nations Population Fund (UNFPA) in its 'India Aging report 2023' cites that undoubtedly relatively young India today will turn into a rapidly aging society in the coming decades. It projects that the 60+ will make up 15% of the total population by 2036 or 13 years from now. Further it adds that by 2050, one in five Indians will be elderly. [24]

In this context, the problem of early aging in India will accelerate the number of aging population there by losing

the benefit of demographic dividend that India has through its young population. [24]

Hence, through the roll out of NPCDCS across the nation to deal with these types of Non Communicable Diseases, the Government of India operates National Program for Prevention & Control of Cancer, Diabetes, Cardiovascualr Diseases & Stroke (NPCDCS) since 2010. [8]

Large scale surveys like National Family Health Survey (NFHS) reflect the trend of India moving from the stage of communicable diseases to the stage of Non Communicable Diseases through the process of epidemiologic transition. Early aging is one such trend that has come to the fore as a result of complications of NCDs. [20]

Way Ahead

A study done by the National Non Communicable Disease (NNCD) monitoring survey in 2022 suggested multifaceted approaches that include improved awareness, adherence to treatment, better preventive & counseling services are crucial to halt diabetes in India. Further, the study suggested expansion of AYUSH into diabetes prevention & control practices as open solutions to manage the diabetes crisis in India. [6]

The most effective approach to manage & address these conditions is through close & regular management of blood glucose levels. Effective & time tested strategies are dietary approaches, regular exercise & appropriate medication. The appropriateness of homoeopathy again comes to the fore here as the therapeutic system follows an individualization approach. [3,4,16,26]

Precaution is the key. The latent dangers of diabetes related ageing, the monitoring of blood sugar levels at regular intervals while staying vigilant & aware of potential hardness related symptoms. [3,4,26]

Adhering to a healthy & balanced diet, regular physical activity helps improve blood sugar control there by strengthening organs & delaying the ageing process. [3,4,16,26]

Regular adherence to prescribed medications while managing stress is critical as stress can affect blood sugar levels thus contributing to fast ageing through complications. The masking of hardness related symptoms challenges early detection & timely intervention as these processes are painless initially. Each diabetic must prioritize whole health by maintaining optimal blood sugar control. They should be staying aware of alternative symptoms related to hardness while seeking prompt medical attention when necessary. [3,4,16,26]

The COVID 19 pandemic has led to long COVID cases that are potential for the upcoming early aging cases. To cover a country like the scale of India, the concept of Universal Health Coverage (UHC) through integration of AYUSH is the only viable alternative. [22,23]

Homoeopathic approach

Above sections show that there are complex interplay between NCD and the aging processes thus needing a holistic approach to management in dealing with early aging cases that addresses both physical and psychological/mental factors. This is where homoeopathy chips in to play an active role. As already mentioned above, all Homoeopathic medicine has physical and mental symptoms as all the homoeopathic drugs are proved on human beings. Given below are Homoeopathic medicines that are primarily from four sources. These are H.C. Allen's Key notes, Robin

Murphy's Materia Medica, Phatak's Materia Medica & Boericke's Materia Medica. These four text books are used to teach homoeopathic students who become qualified homoeopaths later. The treatment plans for the early aging issues mentioned above are given below. [9 to18]

The major reference book here is the Concise Repertory of Homoeopathic Medicines by Dr. Shankar Raghunath Phatak (1896-1981) who practiced Homoeopathy in Pune, Maharashtra. He had an M.B.B.S. degree from Grant Medical College, Mumbai. [11]

Under the rubric, Old age & Senility, the drugs in capitals are 'Aurum Met', 'Baryta Carb', 'Kali Carb', 'Lachesis', 'Lycopodium', 'Opium'. This means these drugs not only deal with issues of old age but also prevent early aging. The homoeopath has to select the Similimum based upon the current Totality picture of the case. [11]

Under the rubric, Early, Premature aging, the drugs are 'Ambra Grisea', 'Argentum Nitricum', 'Baryta Carb', 'Berberis Vulgaris', 'Conium', 'Flouric Acid', 'Kali Carb', 'Lycopodium', 'Selenium', 'Sumbul'. The homoeopath has to select the Similimum based upon the current Totality picture of the case. [11]

Under the rubric, 'Old Look' under face, the drugs are 'Alumina', 'Argentum Nitricum', 'Baryta Carb', 'Calcarea Carb', 'Conium', 'Guaicum', 'Lycopodium', 'Opium', 'Sanicula', 'Sarsaparilla', 'Sepia', 'Sulphur', 'Syphilinum', 'Tuberculinum'. The homoeopath has to select the Similimum based upon the current Totality picture of the case. [11]

For wrinkled face due to natural aging or early aging, the drug is 'Pulex'. [11]

Under miasmatic angle, when the process inside the body is in inflammatory stage, the miasm is 'Psoric'. When the body undergoes a destructive process, the miasm is 'Syphilitic' & when the hardness occurs in the body; the miasm is 'Sycotic'. As it involves the entire process that leads to early aging, these anti miasmatic drugs will help reduce the pace of aging. The homoeopath has to elicit the miasm in the background & prescribe accordingly. [16]

All the Bowel Nosodes will help the body to have a healthy gut while thereby improving the immunity of the body reducing the pace of early aging. A lower Firmicutes to Bacteriodes ratio or commonly called F/B ratio has to be maintained in each individual. A lower F/B ratio is preferred as higher ratio indicates imbalance. [15, 27]

Similarly, the appropriate Bach Flower remedy from among the 38 remedies will reduce the stress levels & help the body to develop a healthy mind there by addressing the issue of early aging. The homoeopath has to assess the current mental/psychological state of the patient & may prescribe a single or a mixture of the appropriate remedies at one time. [18]

Burden of the problem at National Level

Table 1- Prevalence of Blood Sugar among adults in India [8]

Indicator	Gender	Urban	Rural	Total
Percentage of Women age 15 years and above who have high blood sugar level (141-160mg/dl)	Female	6.7	5.9	6.1
Percentage of Women age 15 years and above who have very high blood sugar level (>160mg/dl)	Female	8.0	5.5	6.3
Percentage of Women age 15 years and above who have high or very high blood sugar level(>140mg/dl) or taking medicine to	Female	16.3	12.3	13.5

control blood sugar level				
Percentage of Men age 15 years and above who have high blood sugar level (141-160mg/dl)	Male	7.8	7.0	7.3
Percentage of Men age 15 years and above who have very high blood sugar level (>160mg/dl)	Male	8.5	6.5	7.2
Percentage of Men age 15 years and above who have high or very high blood sugar level(>140mg/dl) or taking medicine to control blood sugar level	Male	17.9	14.5	15.6

This reflects the magnitude of the problem in the country from the perspective of whole health as diabetes is a metabolic disorder with an altered physiology leading to pathology & early ageing in the body. The data also reflects that males are more diabetic than females in India thus leading to early ageing in more males than females. [8]

Currently, the Crude Death Rate includes Non Communicable Diseases (NCD) deaths and this trend is catching up as NCDs have the upper hand than the Communicable Diseases (CD) as a result of epidemiological transition. Diabetes is one such NCD with an improper body leading to early ageing in Diabetes affected people. [8]

In India, Homoeopathy is the third preferred system of treatment after Allopathy and Ayurveda. About 10% of the populations depend on Homoeopathy for their health issues. This means

Homoeopathy is used by 10% of the population in India currently. So, out of the 1300 million populations, 130 million use Homoeopathy or 130 million uses Homoeopathy for their health issues. These 130 million consist of all age groups i.e. infant to old age. [19]

A section among the 15+ age group suffers from diabetes as per NFHS 5. Considering that, it is 2/3rd of the population in India (15-65+ year age group) or 100 crore or 1000 millions. Out of this 100 crores, 27% adults are diabetic or about 27 crores are diabetic. These people are at risk from the rest 73 crores. As 130 million use homoeopathy, 2/3rd of the users will be in 15-65+ year age group or 98 million. So if homoeopathy in integrated in to the diabetic battle in India, 98 million people can be saved from being complicated diabetic cases and can be prevented from early ageing. Application of these concepts through homoeopathy on a large scale will reduce early ageing related issues & will be a blessing in this regard. [8,19]

The cost effectiveness, clinical effectiveness & zero side effects add to the benefit of using Homoeopathy on a large scale as it fits into the criteria of National List of Essential Medicines & the National List of Essential AYUSH Medicines. [21,25]

Conclusion

As all drugs in homoeopathy have a group of mental as well as physical symptoms, Homoeopathy is and will be effective against early aging processes in general as it takes care of the mental/psychological issues as well. However, it should be also seen that along with constitutional/deep acting/polychrest Homoeopathic medicines, specific medicines are also required to deal with the cases.

It should be ensured that nutrition, counseling and all psychic health modalities like life style modification, diet and stress reduction are adhered in each case. In fact, the

detailed case taking of a case & empathetic hearing are the elements of supportive therapy as NCD related early aging cases are chronic and resistant. The Homoeopathic approach of case-taking/anamnesis exactly fits into the criteria of supportive therapy. Hence, as a part of treatment, the supportive therapy is inherent in the Homoeopathic system of treatment.

To get optimal results, the Homoeopathic fraternity should be ready to cover the masses as there is no other therapeutic system that can cover the masses effectively both therapeutically & economically.

Declaration of the lead author

Prof. Shankar Das, a co-author of the current article was the Ph.D. guide of the lead author at Tata Institute of Social Sciences, Mumbai. Prof. D.P. Singh was the teacher of the lead author at TISS, Mumbai during 1995-1997. The lead author also certifies that he has expressed his personal opinion based upon his public health and clinical experiences. The treatment approach or the medicines suggested are only suggestive in nature.

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Conflict of interest

Nil

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