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Review Article

New Perspective of Life Style Drugs

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ABSTRACT

The life style drugs have opened a new therapeutical horizon in pharmaceutical scenario. They have booming market and became multi-million dollar international industry. The new categories of drugs – anti-obesity, anti-dementia and anti-phobial are included in them. Nootropics are novel life style products for males.

Keywords: Life style, New drug, Nootropics, Market, Boom.

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INTRODUCTION

The life style drugs¹⁻³ have opened a new therapeutical horizon in pharmaceutical scenario. They have booming market⁴⁻⁵ and became multi-million dollar international industry. The non – ayurvedic drugs are the contemporary organic compounds for curbing stress, phobias, social and psychological setbacks⁶⁻⁸. The technocratic cultures of artificial intelligence and virtual values have negatively influenced the integrative biology of the human body. The quality of life decayed which led to evolution of life style drugs to improve quality of life for the optimal health. The classical generations of life style

drugs were structurally modified for better outcome and compliance. Recent advances⁹⁻¹¹ have extended their therapeutical dimension by inclusion of anti-obesity, anti-dementia, anti-phobial, novel anti-depressant and Nootropics (smart drugs / cognitive enhancers)¹²⁻¹³.

Theoretical Methodology

New life style drugs⁹⁻¹¹ are from different pharmacological classes. They include anti-obesity, anti-dementia, anti phobial or anti-anxiety, anti-depressant. Nootropics¹⁴ (rejuvenative therapeuticals) are tabulated in (table one and two).

Table 1: New Life Style drugs^{1-3, 14-20}

S.N.	New Lifestyle drugs	Basic chemistry	Specific MOAs
1.	Alprazolam (Anti – anxiety / anti – phobials)	It is 1,4-benzodiazepine + triazolyl group.	It acts through GABA – A receptor by binding on BDZ-GABA-A-Cl ionophore receptor present in limbic, thalamic and hypothalamus regions.
2.	Brexanolone (Anti – depressant)	It is an Allopregnanolone and naturally produced steroid.	It acts as positive allosteric modulator of GABA-A-receptor.
3.	Citalopram (Anti – anxiety / anti – phobial)	It is a chiral drug. One stereo center S(+) and R(-) are enantiomeric forms.	It is a inhibitor of CNS neuronal reuptake of serotonin (5-HT) ^{Label} .

		Racemic mixture is used.	
4.	Donepezil (Anti – dementia / Alzheimer)	It is piperidine derivative. Benzofuran dioxolone ring system is present.	It selectively and reversibly inhibits the acetylcholinesterase enzyme, which normally breaks down into acetylcholine, and Neuro cognitive enhancer.
5.	Esketamine (Anti – depressant)	It is an analog of ketamine (dissociative anesthetic) having 2-oxo group in cyclohexane.	It acts as dopamine receptor reuptake inhibitor. The S-enantiomer of racemic ketamine, is a non-selective, non-competitive antagonist of the N-methyl-D-aspartate (NMDA) receptor.
6.	Fluoxetine (Anti – depressant)	It is antidepressant SSRIs, chiral drug R(-) and S(+), and both are equipotent. Trifluoro methyl phenoxy and it is derivative of propane amine.	It inhibits serotonin reuptake in synapse by binding to the reuptake pump on the neuronal membrane, so increase availability of 5-HT.
7.	Galantamine (Anti – dementia / Alzheimer)	It is alkaloid isolated Galanthus flowers. Structurally unique fusion of diaryle benzodiazepine with tetrahydro furon with methyl and hydroxyl groups.	It blocks the breakdown of acetylcholine in the synaptic cleft, thereby increasing acetylcholine neurotransmission. It also acts as an allosteric modulator of the nicotinic receptor.
8.	Levomilnacipran (Anti – depressant)	It is a chiral drug, levo isomer is active and is derivative of phenylcyclopropanecarboxamide.	It acts as serotonin – nor epinephrine reuptake inhibitor.
9.	Lorcaserin (Anti – obesity)	It is substituted benzoazepine derivative.	It reduces appetite by activating 5-HT _{2c} receptor in a region of the hypothalamus, which is known to control appetite and acts as selective agonist.
10.	Memantine (Anti – dementia / Alzheimer)	It is a cage like structure. 1 amino adamantane with 3,5 dimethyl groups.	It is antagonist of glutamergic receptor.
11.	Moclobemide (Anti – anxiety / anti – phobial)	Benzamide + morpholin group at nitrogen.	It is selective reversible inhibitor of monoamine oxidase – A so increases levels of norepinephrine, dopamine and serotonin in neuronal cells and synaptic vesicles.
12.	Orlistat (Anti – obesity)	It is saturated derivative of lestatin.	It works by inhibiting gastric and pancreatic lipases, the enzymes that break down triglycerides in the intestine. When lipase activity is blocked, triglycerides from the diet are not hydrolyzed into absorbable free fatty acids, and excreted unchanged.
13.	Paroxetine (Anti – anxiety / anti – phobial)	It also inhibit reuptake of benzodioxolone + piperidine + 4-fluorophenyl.	It is most potent and specific SSRIs.
14.	Rimonabant (Anti – obesity)	It is Piperidine – 1yl pyrazole -3-carboxamide derivative.	It acts as inverse agonist for cannabinoid receptor (CB).
15.	Rivastigmine (Anti – dementia / Alzheimer)	It is a carbamate ester of ethyl (methyl) of carbamic acid with phenol.	It is a cholinesterase inhibitor, inhibits both butyrylcholinesterase and acetylcholinesterase (unlike donepezil, which selectively inhibits acetylcholinesterase).
16.	Setmelanotide (Anti – obesity)	It is a peptide drug. The peptide sequence is Ac-Arg-Cys(1)-D-Ala-His-D-17Phe-Arg-Trp-Cys(1)-NH ₂ .	It acts as selective agonist of MC ₄ receptor (melancortine).
17..	Sildenafil (Medication for Erectile dysfunction)	The fused ring system (6-oxo pyrimidine + 1 methyle, 3-propyle pyrazole) is directly linked to other ring system made of ethoxy aryle and 4- methyl piperazine,1-sulfonyl.	It is a cGMP-specific phosphodiesterase type 5 (PDE5) inhibitor. The physiological mechanism responsible for erection of the penis involves the release of nitric oxide (NO) in the corpus cavernosum in response to sexual stimulation.
18.	Tadalafil (Medication for Erectile dysfunction)	It is a carboline-based compound with vasodilatory activity.	The cGMP relaxes smooth muscle and increases blood flow to the corpus cavernosum. The inhibition of phosphodiesterase type 5 (PDE5) enhances erectile function by increasing the amount of cGMP.
19.	Vardenafil (Medication for Erectile dysfunction)	It is a benzene sulfonamide derivative.	It is a PDE ₅ inhibitor and a selective inhibitor of cyclic guanosine monophosphate (cGMP)-specific phosphodiesterase type 5 (PDE5).
20.	Vilazodone (Anti – depressant)	It is composed of benzofuran carboxamide linked to 6-cyano indol via butyl group.	It acts as selective serotonin reuptake inhibitor and activator of HT-Rs as partial agonist.

Table 2: The new rejuvenative therapeutics (nootropics) for males¹⁴

S. No.	Nootropics	Functional roles
1.	Ashwagandha	It is a powerful holistic healing herb and used for anxiety reduction.
2.	Aspirin	Best for inflammatory depression. Take along other medication. Example SSRIs for busting stress.
3.	Beetroot juice	It has high nitrate levels help to deliver oxygen around body like legal EPO (erythropoietin). It gives better brain connectivity.
4.	Caffeine	Linked to raise testosterone. It can combine to threonine for compromising its potency.
5.	Cannabidolor CBD oil	It is non-psychoactive legal extract of cannabis plants. It is anti-inflammatory and support muscle recovery.
6.	Creatine	It enhances thought processing, delay mental fatigue when added to shake.
7.	Gelatin	Haribo + Vitamin C, helps to rebuild ligaments + tendons.
8.	Glycine	It is promising contender 3g scoop, an hour before bed. Aid quality rest plus boost mood the next day. It is naturally sweet so add it to your coffee.
9.	Inulin	Probiotic powder derived from chicory root. It nourishes the healthy bacteria of gut – reduce physical and psychological long term stress.
10.	Magnesium	Most of people are deficient in this mineral. It has health benefits –as improves sleep quality, helps to maintain your aerobic capacity.
11.	Mushrooms	Non-psychoactive. It increases immunity and helps in cancer prevention.
12.	Nestorone	Gel with testosterone is hormonal drug. It inhibits sperm production therefore it is topically applied as male contraceptive.
13.	Psilocybin	Psychedelic compound derived from magic mushrooms- sooth social anxiety, quieting intrusive negative thoughts, may be fixer for clinical depression.
14.	Psychobiotics	Certain strains of probiotics to tap into the gut-brain axis. These pills curb stress and lift your mood.
15.	Sodium bicarbonate	It is effective for boosting stamina and neutralizing lactic acid in fatigued muscle.
16.	Tadalafil	This is blood flow boosting erectile dysfunction drug. It can be taken daily – 5mg dose found to boost testosterone.
17.	Theracurmin	Form of cur cumin, potent anti-oxidant. It enhances memory- well absorbs and improves mood in old adults.
18.	Type II collagen	More aesthetic anti-aging collagen lauded for its ability to strengthening for joints and ligaments, ease pain and increase mobility Achilles heel.
19.	Viagra	Little blue pills counter erectile dysfunction of stressed out young men and it is a smart and safer option than other drugs.
20.	Vitamin D3	It has heart and bone protecting benefits. Boost muscle strength, 87% stronger than D2.

DISCUSSION AND RESULTS

The current market⁴⁻⁵ of life style drugs is phenomenal (about 28-29 billions), and marketed as health pills. They have medical value in mental and emotional health's^{6-8, 13,14} of young people. The psycho sociological positiveness of human mind in young is reflected by self-image, self-confidence and self esteem. The steady loss of self-care and esteem necessitates use of life style drugs. New life style drugs are designed for optimal patient compliance. Nootropics are novel health bless for males as life style drugs¹⁴. Modern medical research suggested that addition of health pills can be reduced by improving life style

through personal changes or behavioral modifications. New perspective of life style drugs is aimed to provide optimal health consistency for alive functionality free from despondency and dependency. The rational and quality of medicine should not be pharmageddon for life style.

CONCLUSION

The modern advancements in life style drugs improve the quality of life. They are booms for pharmaceutical industry. Nootropics for males hold promising future as new life style products. Health and happiness go hand in hand therefore the right life style of living in the absence of

disease stimulates health behaviors. We should cultivate some degree of healthfulness and wellness. This is a real value and quality of life style.

REFERENCES

1. Burger's Medicinal Chemistry and Drug Discovery book in ninth chapter of 6th edition volume 4, 2007, from pages 417-475.
2. Moldrup C. The use of terms 'lifestyle medicines' and 'lifestyle drugs'. *Pharm World Sci* 2004; 26:193-6.
3. Rahman SZ, Gupta V, Dang A, Sukhlecha A. Lifestyle drugs in India: Are we ready for them? *Australasian Med J* 2010;1:186-9.
4. Economy Survey 2007-2008. India: Ministry of Finance, Govt. of India. Available from: <http://www.indiabudget.nic.in/> [last updated on 2008 Apr 24] [last cited on 2010 Feb 9].
5. Atkinson T. Lifestyle drug market booming. *Nature Med* 2002; 8:909.[PubMed].
6. Flower RJ, Lifestyle drugs: Pharmacology and social agenda. *Trends Pharmacol Sci* 2004; 25:185-5.
7. Wick JZ, Lifestyle Drugs Straddle Medical and Social Domains. *Pharmacy Times* Available from: <http://www.pharmacytimes.com/issue/pharmacy/2006/2006-03/2006-03-5308>. [last updated on 2006 Mar 1] [last cited on 2010 Feb 9].
8. Rhaman, et al: Impact of Lifestyle Drugs on Society, *Indian J Pharm Sci.* 2010 Jul-Aug; 72(4): 409-413.J.Weber, The New Era of Lifestyle Drugs.
9. J.Weber, The New Era of Lifestyle Drugs,available online at <http://www.businessweek.com/1998/19/b35777001.htm>, accessed on December 28,2001.
10. Gilbert D, Walley T, New B, Lifestyle medicine, *Br Med J* 2000; 321:1341-4.
11. Ornish D. Intensive Lifestyle changes and health reform. *Lancet Oncol.* 2009;10(7):638-639.
12. Young Sn. Lifestyle drugs, mood behavior and cognition. *J Psychiatry Neurosci* 2003; 28:87-9.
13. Rose SPR. 'Smart Drugs'; Do they work? Are they ethical? Will they be legal? *Nature Rev Neurosci* 2002; 3:975-9. [PubMed].
14. Drugs for men 20 best- men's health. <https://www.menshealth.com/uk/health/g26005278/best-drugs-for-men/>
15. Marc Schneeberger et.al, Regulation of Energy Expenditure by Brainstem GABA Neurons, *Cell* (2019). DOI: 10.1016/j.cell.2019.05.048.
16. www.ncbi.nlm.nih.gov.
17. [https://www.nia.nih.gov/health/how-alzheimers-disease-treated#:~:text=These%20drugs%20may%20help%20reduce,and%20Aricept%20AE%20\(donepezil\)](https://www.nia.nih.gov/health/how-alzheimers-disease-treated#:~:text=These%20drugs%20may%20help%20reduce,and%20Aricept%20AE%20(donepezil)).
18. [https://anxieties.com/152/med-intro#:~:text=The%20selective%20serotonin%20reuptake%20inhibitors,%20and%20escitalopram%20\(Lexapro\)](https://anxieties.com/152/med-intro#:~:text=The%20selective%20serotonin%20reuptake%20inhibitors,%20and%20escitalopram%20(Lexapro)).
19. [https://healthtalk.org/depression/newer-anti-depressant-medication#:~:text=The%20main%20types%20of%20antidepressant,%20and%20sertraline%20\(Lustral\)](https://healthtalk.org/depression/newer-anti-depressant-medication#:~:text=The%20main%20types%20of%20antidepressant,%20and%20sertraline%20(Lustral)).
20. <https://www.webmd.com/erectile-dysfunction/guide/future-treatments-ed>. Future Treatments for Erectile Dysfunction.

