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A Review on the Impact of Acupuncture on Obesity

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Review Article

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ABSTRACT

Weight is an overall malady that outcomes from a deregulation of vitality adjust and changes in adipokines. Furthermore, different atoms with metabolic pertinence. Pharmacological medicines for corpulence are regularly related to tranquilize unfavourable impacts. Among option and correlative remedial strategies for heftiness treatment, Traditional Chinese Medicine and especially needle therapy that have been polished for a huge number of years in China have been progressively utilized for the proficient control of body weight without creating negative symptoms and weight recapture. A few works have recommended that the impacts of needle therapy might be identified with hypothalamus incitement, which may manage the generation of a few proteins required in sustenance admission and vitality use equalization. In this audit, we display the principle aftereffects of English distributions got from PubMed database and also information from works distributed in unique Chinese dialect.

INTRODUCTION

Weight is a worldwide general wellbeing issue that displays the qualities of a pandemic because of its quickly expanding occurrence [1-3]. Eminently heftiness advances hyperglycemia, hyperinsulinemia and hyperleptinemia, and in addition glucose narrow mindedness and insulin resistance [4] that are a piece of the metabolic disorder [3,5,6]. It likewise speaks to a danger for degenerative ailments, including coronary ailments, heart assault, barrenness, and erectile brokenness, arthropathies, neuropathies, and additionally colon, prostate, endometrial and bosom growth [7]. These stoutness related maladies cause an exorbitant financial cost and speak to the fundamental driver of death around the world. Together with an adjusted eating routine and physical activity, against stoutness medications and surgery procedures can help patients to get thinner. Be that as it may, they for the most part create antagonistic impacts and weight recapture is extremely basic if patients don't entirely take after healthful suggestions and return to their inactive way of life. In this way, there is an expanding enthusiasm for option and corresponding helpful strategies for weight treatment. Among these, Traditional Chinese Medicine (TCM) and especially needle therapy that have been honed for thousands years in China, speak to a reasonable remedial methodology for people with corpulence, without creating pessimistic symptoms and weight recapture. This audit portrays the principle metabolic pathways required in body weight direction, with an accentuation in leptin and adiponectin adipokines that are fundamental for the control of sustenance admission and vitality consumption parity. It additionally portrays the clinical viability of needle therapy treatment for corpulence and gives proof about the impacts on these adipokines and other applicable biochemical parameters, from broad investigations of English articles distributed in PubMed database, and also works distributed in unique Chinese dialect in needle therapy and TCM diaries.

Obesity

Weight is characterized as an anomalous increment of unsaturated fats stockpiling in an extended fat tissue mass [3] and amassing of ectopic fat, which is related to an expanded number and size of adipocytes as an aftereffect of aloof overconsumption of high-fat and carbohydrates rich eating regimens, and low physical action. This vitality lopsidedness is because of various physiological, mental, financial, social, enthusiastic, metabolic and hereditary components, whose mind boggling parts are not completely saw yet [8,9]. At cell level, corpulence is likewise related with enactment of immunocompetent cells, for example, macrophages, which create a poor quality unending

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irritation portrayed by unusual cytokine generation, expanded intense stage reactants and different middle people, and initiation of a system of provocative flagging pathways [6].
Automatic control of vitality homeostasis is thought to be pivotal to keep up the balance between vitality admission and consumption. All in all, body weight is controlled by the focal sensory system (CNS), for the most part hypothalamus, which controls yearning and satiety in light of an unpredictable system of signs from endocrine tissues, including pancreas (insulin), fat tissue (leptin, adiponectin) and stomach (ghrelin)[10]. These fringe signals give data about the ingested sustenance to the mind, which reacts by means of incorporated neuropeptide pathways that are identified with vitality homeostasis, including neuroendocrine actuation from the pituitary organ, engine conduct, and autonomic movement, which is a principal metabolic procedure, including lipolysis, insulin and glucagon discharge from pancreas, and glucose blend from liver[11].

Fat tissue is not just a detached store of vitality [12], it additionally assumes a part in vitality homeostasis by direction of entire body free unsaturated fat (FFA) homeostasis. It stores FFAs as triglycerides through their esterification to glycerol in times of calorie wealth, and discharges them back to the course in times of vitality deficiency[3]. In light of supplement, neural and hormonal signs, fat tissue additionally secrete bioactive peptides, called adipokines, which act at neighborhood (autocrine/paracrine) and systemic (endocrine) levels to control sustaining, thermogenesis, invulnerability and neuroendocrine capacity [13]. Notwithstanding these efferent signs, fat tissue communicates receptors to react to afferent signs from hormone frameworks and CNS [14]. It additionally has a part in insulin resistance and cardiovascular entanglements [6].

The overwhelming sort of fat tissue normally called "fat" is the white fat tissue (WAT) situated in subcutaneous locale and around viscera [13]. It comprises of adipocytes encompassed by vascularized and innervated free connective tissue with macrophages, fibroblasts, adipocytes forerunners and different cells. Outstandingly, WAT is in charge of the union of adipokines for body weight control: leptin, adiponectin, acylation animating protein and resistin are delivered by adipocytes, while TNFα and IL-6 are combined by macrophages [15-20].

Primary Adipokines Involved in Body Weight Control

Leptin

The best known adipokine that advances weight reduction is leptin that follows up on the hypothalamus (arcuate core), smothering nourishment allow and animating vitality consumption through expanded thermogenesis [8]. The administrative criticism incorporates the accompanying strides: 1) a sensor (leptin creation by fat cells) screens the level of vitality stores (size of fat tissue mass); 2) hypothalamic focuses get and coordinate the leptin signal through leptin receptors; 3) effectors frameworks (basically thoughtful sensory system) control vitality admission and vitality use [8]. Leptin discharged from WAT goes into the circling framework, ties to a short type of leptin receptor (LRa) and crosses the blood-mind hindrance [21-25]. In the hypothalamus, leptin ties to the long type of leptin receptor (LRb) in two distinct gatherings of neurons. One populace integrates and discharges two orexigenic neuropeptides: the neuropeptide Y (NPY) and the agouti-related peptide (AGRP); alternate produces two anorexigenic proteins: the anorexigenic peptide α-melanocyte-animating hormone (α-MSH), which got from professional opiomelacortin (POMC) and the cocaine and amphetamine-related transcript (CART) [26-40].

Customary Chinese Medicine and Acupuncture for the Treatment of Obesity

Customary Chinese Medicine (TCM) is a finished restorative framework that has been utilized to analyze, treat, and avoid sicknesses for over 2,000 years. TCM depends on the confidence in yin and yang (characterized as restricting energies): when they are in parity, there is wellbeing; when they are out of equalization, it implies ailment [41]. As per TCM, life power or "Qi" flows longitudinally all through the body inside 12 vitality pathways named "fiery channels" or "meridians"[42] that associate with what Western drug characterized as organs or tissues. Wellbeing relies on upon the best possible capacity and agreement of a framework comprising of "organs", "fundamental substances" (vitality, blood, liquids) and "vigorous channels". At the point when parity is upset, indispensable substances generation and circulation all through the body is modified and infection happens [43-50]. Incitement of particular focuses in the "channels", called "acupoints", utilizing distinctive strategies can standardize Qi to reestablish wellbeing [51,52].

Atomic components of needle therapy

Late trial concentrates on have attempted to explore the sub-atomic systems basic the impacts of needle therapy, a standout amongst the most utilized techniques for TCM. Using useful attractive reverberation imaging, Napadow et al. demonstrated that limbic framework is integral for the acupunctural impact (needle therapy, electro acupuncture or material weight), albeit distinctive pathways and neurobiological reactions are actuated relying upon invigorated focuses [53-60]. Conversely, there was no reaction in limbic framework when no-focuses were

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fortified as control [61-65]. These sub-atomic instruments may clarify the impacts of needle therapy in stoutness control following limbic framework incorporates the hypothalamus area that directs nourishment admission and vitality consumption parity. Different studies have uncovered that endogenous opioid peptides (enkephalin, beta-endorphin, endomorphin, dynorphin) in CNS intervene the pain relieving impact of electro acupuncture [66]. In any case, the careful instruments hidden the advantageous impacts of needle therapy in numerous pathologies, including heftiness, remain to a great extent obscure.

Corpulence in TCM

The Chinese expression for corpulence is "fei throb" which signifies "fat, oil effortlessly created". TCM portrays heftiness as a mind boggling condition including vitality frameworks of spleen, liver and kidney. The adjustment of their vitality makes unevenness in body liquids digestion system, which creates obsessive items called "dampness" or "stickiness" and "mucus" that collect in various parts of the body as fat. This mucus fat turn constitutes an obsessive item that triggers a wide assortment of ailment procedures, influencing different body frameworks. TCM likewise considers that poor dietary patterns and inactive ways of life cause heftiness, and perceives that heredity and inherently decided constitution are essential. As indicated by the qualities of every patient, heftiness can compare to unmistakable inadequacy disorders and particular focuses ought to be fortified. The individual analytic additionally incorporates clinical signs, the outspread heartbeat, and a particular assessment of the tongue [67-75].

Electroacupuncture

Electroacupuncture is the most habitually utilized needle therapy system to control body weight, on the grounds that the incitement is steady and effectively quantifiable in Hertz (Hz). In this way, the parameters of EA can be correctly described, which permits reproducible results.

In 2005, You and Hung demonstrated that 100 Hz EA (respective Zusanli (ST36) and Sanyinjiao (SP6) for 30 min amid 14 days) fundamentally hinders weight pick up in Wistar diet-affected corpulent (DIO) rats, with a diminishing in triglycerides and an expansion in HDL. Leptin and insulin levels were altogether expanded in control bunch, while they stayed unaltered in EA bunch [76]. In human, a comparable lessening in body weight, lipid profile (triglycerides, all out cholesterol and LDL), and in addition in midriff and hip boundary, was watched when patients were treated with EA for six weeks (respective Tianshu (ST25), two-sided Weidao (GB28), Zhongwan (CV12), Shuifen (CV9), Guanyuan (CV4), Sanyinjiao (SP6), and also Quchi (LI11) and Fenlong (ST40) for corpulent patients with higher vitality, or Qihai (CV6) and Yinlingquan (SP9) for patients with lower vitality, utilizing 30-40 Hz and thick scatter wave), trailed by a six week's time frame with no treatment for six weeks and an additional six weeks duration with a low-calorie diet. These outcomes showed that EA displays long haul impacts on body homeostasis in hefty patients [77-80]. Body weight and serum leptin diminishment ($p<0.000$) because of EA (ear focuses Sanjiao (Hungry) and Shenmen (Stomach), and body focuses Hegu (LI4), Quchi (LI11), Tianshu (ST25), Zusanli (ST36), Neiting (ST44), Taichong (LV3) and Qihai (CV6), once day by day, for 30 minutes, amid 20 days) were likewise connected with an expansion in serum beta endorphin (BE) levels ($p<0.05$). Creators theorized that the impact of EA in adjusting serum BE level could upgrade lipolytic movement, which may impel weight reduction by preparing vitality stores [81]. A randomized, sham-controlled preparatory trial affirmed that the noteworthy diminishment of body weight and body mass list (BMI) in hefty ladies treated with EA (Hegu (LI4), Shenmen (HT7), Zusanli (ST36), Neiting (ST44), and Sanyinjiao (SP6) respectively, two sessions of 20 minutes/week for five weeks) was identified with diminished levels of leptin. They additionally watched lessened insulin levels, and expanded levels of ghrelin and cholecystokinin [82]. Lou et al. additionally reported that EA can fundamentally diminish leptin levels and increment adiponectin serum levels in hefty [83]. At long last, investigation of Fan et al. confirm that EA at horizontal Housanli and Neiting (ST44) with 2-15 Hz, 4mA for 49 days, was more compelling than the counter corpulence drug, sibutramine, to diminish body mass through the control of adiponectin and insulin levels in large rats [84,85].

To affirm that EA, and not the anxiety created by the control, was in charge of body weight lessening and adipokines adjustment, Kim et al. analyzed three gatherings of rats: AL (sustained not indispensable with no treatment), Holder (bolstered not obligatory with day by day holder restriction) and EA (encouraged not obligatory with day by day holder limitation and 100 Hz EA incitement) bunches [86]. After the four-week trial period, they confirm that sustenance admission and body weight lessening in EA gathering was related to expanded serum leptin levels, as beforehand reported. Strikingly, the level of anxiety hormones, for example, epinephrine and norepinephrine, and corticosterone, was expanded in Holder bunch, however not in EA bunch. Inside and out, these outcomes recommended that the impact of EA on body weight was through expanding leptin, yet was not because of the anxiety brought about by the day by day holder restriction [87-90]. Taken through and through, these studies showed that EA may control heftiness inferable from its advantageous consequences for hormones that take part in pathways directing body weight, to be specific leptin and adiponectin, among others. An intriguing study demonstrated that the huge lessening in nourishment admission and body weight in DIO rats treated with 2 Hz EA

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(Zusanli (ST36) and Sanyinjiao (SP6) with power expanding stepwise from 0.5-1-1.5 mA every day for 30 minutes), was connected with expanded levels of α-MSH peptide and POMC mRNA in hypothalamus, and a hoisted α-MSH focus in CSF [91,92]. These information recommended that the instrument by which EA controls body weight in rodent includes α-MSH that has an anorexigenic impact [93-96]. In another study, notwithstanding the impact on voracity and α-MSH, the utilization of 2 Hz EA (four weeks, three sessions/week) in DIO rats additionally instigated increment in anorexigenic CART peptide, and a reduction in orexigenic peptide NPY in hypothalamus. The balance of these neuropeptides could clarify the decrease of nourishment admission and body weight in rodent. Eminently, 2 Hz EA treatment impelled a more essential lessening in sustenance admission, body weight and ghrelin levels, that 100 Hz EA; while 100 Hz EA was more effective to decrease cholesterol and triglycerides, and expansion plasma leptin [97-100].

CONCLUSION

Heftiness is not just a nourishment infection that outcomes from an unevenness between vitality admissions versus calorie utilization; it is a complex metabolic disease that includes disequilibrium in different frameworks outlined in the psycho-neuro-endocrine-insusceptible hub. As a worldwide impact, the adipocyte a long way from being a united cell turns into the foe of the large person, which now and again can prompt demise. Rising test proof portrayed above demonstrates that needle therapy has multi-faceted impacts in stout patients. Predictable with the clinical impacts on body weight, needle therapy conventions can alter serum levels of leptin and adiponectin adipokines, and in addition insulin, α-MSH, POMC, CART, SIRT 1, PPARγ, TNFα and MCP-1, among others. Subsequently, there is a balance of different biochemical pathways, including digestion system, aggravation, thoughtful movement and inadequate insulin flagging pathways, not at all like hostile to stoutness sedates for the most part point of confinement their activity to a particular pathway of body weight control. This obviously demonstrates needle therapy and its related systems, in mix with the comprehension of etiology, physiology and syndromatic separation of TCM offer an appealing option treatment for the treatment of heftiness. These remedial techniques don't just enhance the condition of the psycho-neuro-endocrineimmune hub specified above, they additionally add to build the relationship between the distinctive frameworks required in body weight control, so that the adipocyte turns out to be again a neighborly cell and not a period bomb. In any case, extra studies are required to completely comprehend the sub-atomic premise of needle therapy treatment for stoutness. In light of the many-sided quality of its physiopathology, corpulence treatment requires the cooperation of a multidisciplinary group, which implies specialists in needle therapy working with analysts, to have the capacity to correspond the impact of unmistakable needle therapy strategies on weight control with changes of sub-atomic systems and variables required in vitality equalization. Such studies will decide new systems for more viable and more secure control of this overall pandemic ailment.

REFERENCES

1. Wozniak SE, et al. Adipose tissue: the new endocrine organ? A review article. Dig Dis Sci. 2009;54:1847-1856.
2. Webber J. Energy balance in obesity. Proc Nutr Soc. 2003;62:539-543.
3. Banks WA, et al. Leptin enters the brain by a saturable system independent of insulin. Peptides. 1996;17:305-311.
4. Lee GH, et al. Abnormal splicing of the leptin receptor in diabetic mice. Nature. 1996;379:632-635.
5. Elmquist JK, et al. From lesions to leptin: hypothalamic control of food intake and body weight. Neuron. 1999;22: 221-232.
6. Erickson JC, et al. Sensitivity to leptin and susceptibility to seizures of mice lacking neuropeptide Y. Nature. 1996;381:415-421.
7. Vidal H, et al. The expression of ob gene is not acutely regulated by insulin and fasting in human abdominal subcutaneous adipose tissue. J Clin Invest. 1996;98: 251-255.
8. Bastard JP, et al. Recent advances in the relationship between obesity, inflammation, and insulin resistance. Eur Cytokine Netw. 2006;17:4-12.
9. Caro JF, et al. Decreased cerebrospinal-fluid/serum leptin ratio in obesity: a possible mechanism for leptin resistance. Lancet. 1996;348:159-161.
10. Schwartz MW, et al. Cerebrospinal fluid leptin levels: relationship to plasma levels and to adiposity in humans. Nat Med. 1996;2:589-593.
11. Clément K, et al. A mutation in the human leptin receptor gene causes obesity and pituitary dysfunction. Nature. 1998;392:398-401.
12. Vaisse C, et al. Leptin activation of Stat3 in the hypothalamus of wild-type and ob/ob mice but not db/db mice. Nat Genet. 1996;14:95-97.
13. Hirose H, et al. Serum high-molecular-weight adiponectin as a marker for the evaluation and care of subjects with metabolic syndrome and related disorders. J Atheroscler Thromb. 2010;17:1201-1211.

e-ISSN: 2319-9865
p-ISSN: 2322-0104

14. Hu E, et al. AdipoQ is a novel adipose-specific gene dysregulated in obesity. J Biol Chem. 1996;271:10697-10703.
15. Barré L, et al. Genetic model for the chronic activation of skeletal muscle AMP-activated protein kinase leads to glycogen accumulation. Am J Physiol Endocrinol Metab. 2007;292:E802-811.
16. Berg AH, et al. ACRP30/adiponectin: an adipokine regulating glucose and lipid metabolism. Trends Endocrinol Metab. 2002;13:84-89.
17. Yadav A, et al. Correlation of adiponectin and leptin with insulin resistance: a pilot study in healthy north Indian population. Indian J Clin Biochem. 2011;26:193-196.
18. Yamauchi T, et al. Adiponectin stimulates glucose utilization and fatty-acid oxidation by activating AMP-activated protein kinase. Nat Med. 2002;8:1288-1295.
19. Tomas E, et al. Enhanced muscle fat oxidation and glucose transport by ACRP30 globular domain: acetyl-CoA carboxylase inhibition and AMP-activated protein kinase activation. Proc Natl Acad Sci. 2002;99:16309-16313.
20. Wu X, et al. Involvement of AMP-activated protein kinase in glucose uptake stimulated by the globular domain of adiponectin in primary rat adipocytes. Diabetes. 2003;52:1355-1363.
21. Kubota N, et al. Adiponectin stimulates AMP-activated protein kinase in the hypothalamus and increases food intake. Cell Metab. 2007;6:55-68.
22. Cook JR and Semple RK. Hypoadiponectinemia--cause or consequence of human "insulin resistance"? J Clin Endocrinol Metab. 2010;95:1544-1554.
23. Gannagé-Yared MH, et al. Serum adiponectin and leptin levels in relation to the metabolic syndrome, androgenic profile and somatotropic axis in healthy non-diabetic elderly men. Eur J Endocrinol. 2006;155:167-176.
24. Kadowaki T and Yamauchi T. Adiponectin and adiponectin receptors. Endocr Rev. 2005;26:439-451.
25. Ernst E. Methodological aspects of Traditional Chinese Medicine (TCM). Ann Acad Med Singapore. 2006;35: 773-774.
26. Lacey JM, et al. Acupuncture for the treatment of obesity: a review of the evidence. Int J Obes Relat Metab Disord. 2003;27:419-427.
27. García-Cardona MC, et al. Obesity: Problem multifactorial 1st ed. Julian Collection Manzuro Ocaña, Health and Social Life, USA, 2011.
28. Napadow V, et al. Effects of electroacupuncture versus manual acupuncture on the human brain as measured by fMRI. Hum Brain Mapp. 2005;24:193-205.
29. Wu MT, et al. Neuronal specificity of acupuncture response: a fMRI study with electroacupuncture. Neuroimage. 2002;16:1028-1037.
30. Han JS. Acupuncture and endorphins. Neurosci Lett. 2004;361: 258-261.
31. You JS and Hung CC. Effect of electroacupuncture on plasma leptin and insulin in diet-induced obese rats. J Chin Med. 2005;16:101-109.
32. Abdi H, et al. The effects of body acupuncture on obesity: anthropometric parameters, lipid profile, and inflammatory and immunologic markers. ScientificWorldJournal. 2012;2: 603-539.
33. Cabioglu MT and Ergene N. Changes in serum leptin and beta endorphin levels with weight loss by electroacupuncture and diet restriction in obesity treatment. Am J Chin Med. 2006;34:1-11.
34. Gucel F, et al. Influence of acupuncture on leptin, ghrelin, insulin and cholecystokinin in obese women: a randomised, sham-controlled preliminary trial. Acupunct Med. 2012;30:203-207.
35. Luo HL and Li RH. Effect of electroacupuncture on leptin and adiponectin in simple obesity patients. Zhen Ci Yan Jiu. 2007;32:264-267.
36. Fan Y, et al. Effects of electroacupuncture versus sibutramine on adipocyte products in obesity rats. J Clin Reh Tiss Eng Res. 2008;12:2189-2193.
37. Kim SK, et al. The association of serum leptin with the reduction of food intake and body weight during electroacupuncture in rats. Pharmacol Biochem Behav. 2006; 83:145-149.
38. Fei Wang, et al. Arcuate nucleus of hypothalamus is involved in mediating the satiety effect of electroacupuncture in obese rats. Peptides 2011;32: 2394-2399.
39. Tian DR, et al. Up-regulation of the expression of cocaine and amphetamine-regulated transcript peptide by electroacupuncture in the arcuate nucleus of diet-induced obese rats. Neurosci Lett. 2005;383:17-21.
40. Cabioglu MT and Ergene N. Electroacupuncture therapy for weight loss reduces serum total cholesterol, triglycerides, and LDL cholesterol levels in obese women. Am J Chin Med. 2005;33:525-533.
41. Cabioglu MT, et al. The efficacy of electroacupuncture therapy for weight loss changes plasma lipoprotein A, apolipoprotein A and apolipoprotein B levels in obese women. Am J Chin Med. 2008;36:1029-1039.
42. Cabioglu MT and Ergene N. Changes in levels of serum insulin, C-Peptide and glucose after electroacupuncture and diet therapy in obese women. Am J Chin Med. 2006;34:367-376.
43. Lin RT, et al. Acute effect of electroacupuncture at the Zusanli acupoints on decreasing insulin resistance as shown by lowering plasma free fatty acid levels in steroid-background male rats. BMC Complement Altern Med. 2009;9:26.

e-ISSN: 2319-9865
p-ISSN: 2322-0104

44. Liang F, et al. Low-Frequency Electroacupuncture Improves Insulin Sensitivity in Obese Diabetic Mice through Activation of SIRT1/PGC-1α in Skeletal Muscle. Evid Based Complement Alternat Med. 2011: 735297.
45. Yu M, et al. Effect of different intensities of electroacupuncture on expression of monocyte chemoattractant protein-1 and TNF-alpha in adipose tissue in obesity rats. Zhen Ci Yan Jiu. 2011;36:79-84.
46. Gao L, et al. Effects of electroacupuncture and acupoint catgut-embedding on mRNA expression of lipid metabolism gene PPAR-gamma and related lipase of rats with simple obesity]. Zhongguo Zhen Jiu. 2011;31:535-538.
47. Wang SX and Li YH. Effects of catgut- embedding at acupoints on contents of leptin and blood fat in obese rats. Tainjin J Trad Chin Med. 2009;26:63-65.
48. Lou Y. Acupuncture combined with catgut embedding treatment of metabolic syndrome. Chin J Geront. 2012;32: 453-454.
49. Yan RH, et al. Study on the influence of catgut implantation at acupoints on simple obesity leptin and insulin resistance. Chin J Aest Med. 2012;21:490-494.
50. Yuan AH, et al. Changes of adipocytokines following acupuncture in type 2 diabetic rats. J Clin Reh Tiss Eng Res. 2009;13:3915-3919.
51. Sharma A and Purkait B. Effect of Serially Diluted Drug Digitalis purpurea on Modulation of Anesthetized Consciousness of Indian Bufomelanostictus. J Homeop Ayurv Med. 2013;2:132.
52. Sharma AK. A Critical Appraisal of Headache vis-à-vis *Shiro Roga*. J Homeop Ayurv Med. 2013;2:131.
53. Shankar A. Ayurveda for Neurological Disorders. J Homeop Ayurv Med. 2013;2:130
54. Garcia-Vivas J, et al. Effects of Acupuncture on Obesity and Adipokines Involved in Body Weight Control. J Homeop Ayurv Med. 2013;2:129.
55. Ajanal M and Prasad BS. Generalized Skin Rashe After Oral Administration of Ayurvedic Drugs: An Unintened Drug Reaction. J Homeop Ayurv Med. 2013;2:128.
56. Ingle N, et al. Critical Analysis of Charakokta Mahakashaya in the Management of Respiratory Allergic Disorders (RAD). J Homeop Ayurv Med. 2013;2:127.
57. Panda AK, et al. Effect of Indrayava (Holarrhena Antidysenterica Seed) on Inpatient Uncomplicated Severe Hyperglycaemia: A Case Study. J Homeop Ayurv Med. 2013;2:126.
58. Gopinathan G and Dhiman KS. Triphala in Eye Diseases: A Critical Review. J Homeop Ayurv Med. 2013;2:123.
59. Neetu S et al. Importance of Drug Safety and Efficacy W.S.R to *Strychnos Nux Vomica* Detoxification. J Homeop Ayurv Med. 2013;2:125.
60. Mazumdar M, et al. Evaluation of the Safety and Efficacy of Complete Care Herbal Toothpaste in Controlling Dental Plaque, Gingival Bleeding and Periodontal Diseases. J Homeop Ayurv Med. 2013;2:124.
61. Kou MJ, et al. Review on Current Situations of TCM Syndrome Study. J Homeop Ayurv Med. 2013;2:122.
62. Arun Kumar M, et al. Prospective Role of Indian Medicinal Plants in Inhibiting Vascular Endothelial Growth Factor (VEGF) mediated Pathological Angiogenesis. J Homeop Ayurv Med. 2013;2:121.
63. Seyedaghanoor S. Effective Homeopathic Cure of Patient with Somatoform Disorder. J Homeop Ayurv Med. 2013;2:120.
64. Vijayalakshmi N. Ayurvedic Management of Spondyloartropathy with Sacrolitis. J Homeop Ayurv Med. 2013;2:119.
65. Batra M. Attention-Deficit Hyperactivity Disorder and Homeopathy. J Homeop Ayurv Med. 2013;2:116.
66. Gromova E. Homeopathic Treatments for Depression. J Homeop Ayurv Med. 2013;2:117.
67. Kaur H. Homoeopathic Research-Understanding the Challenges. J Homeop Ayurv Med. 2013;2:118.
68. Karthikeyan M and Balasubramanian T. Phytochemical Analysis of *Cynanchum callialatum* through GCMS and LCMS. J Homeop Ayurv Me. 2014;3:143.
69. Noël AN. Contribution of Socio-Anthropology in Schistosomiasis Control - TAABO/Côte d'Ivoire Experiment. J Homeop Ayurv Med. 2014;3:144.
70. Alani VJ and Panchal RR. *In vitro Evaluation* of *Centratherum anthelminticum* Seeds for *Antinephrolithiatic Activity*. J Homeop Ayurv Med. 2014;3:145.
71. Kabir H. Unani Murakkabat (Formulations): Need of Modification. J Homeop Ayurv Med. 2014;3:146.
72. Akhtar J, et al. Incidence of Zeequn- Nafas Shoabi (Bronchial Asthma) in Individuals of Different Temperaments. J Homeop Ayurv Med. 2014;3:147.
73. Saini N and Byadgi PS. Clinical Assessment Criteria for *Ama* Diagnosis. J Homeop Ayurv Med. 2014;3:148.
74. Rao GHR and Gandhi PG. Integrative Medicine: Global Perspective. J Homeop Ayurv Med. 2014;3:150.
75. Banamali D. Concept of Dietetics and its Importance in Ayurveda. J Homeop Ayurv Med. 2014;3:149
76. Saini N and Byadgi PS. Clinical Assessment Criteria for *Ama* Diagnosis. J Homeop Ayurv Med. 2014;3:148
77. Abyot E, et al. Capacity Buildings of Traditional Medicine Practitioners' as a Primary Health Care Workers in Gondar Town, Northwest Ethiopia. J Homeop Ayurv Med. 2014;3:151.
78. Vishvender S, et al. Preventive and Curative Aspect of Yoga in Management of Asthma in Children. J Homeop Ayurv Med. 2014;3:152.
79. Byadgi PS. Critical Appraisal of Immunity in Ayurveda. J Homeop Ayurv Med. 2014;3:153.

e-ISSN: 2319-9865
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80. Suhail S. Suicidal Behaviours in Children, Adolescent & Homoeopathy. J Homeop Ayurv Med. 2014;3:154
81. Nurolaini K, et al. Prevalence on the Use of Traditional Medicine in Brunei Darussalam. J Homeop Ayurv Med. 2014;3:155.
82. Vidya Rani S, et al. Ayurvedic Way Out to Udaavartini (Primary Dysmenorrhoea). J Homeop Ayurv Med. 2014;3:156.
83. Xiangming L, et al. The Development and Application of Methodology of Reverse Pharmacology Illustrated with the Research on Analgesic Effect of Resina Draconis. J Homeop Ayurv Med. 2014;3:157.
84. Tabassum K, et al. Bioactivity Guided Fractionation of the Aqueous Extract of the Indian Banyan and Evaluation of Immunomodulatory Activity - Validating the Traditional Use. J Homeop Ayurv Med. 2014;3:158.
85. Farid Shafei H, et al. Quality of Life in Some Asthmatic Children Treated with Homeopathic Remedies and their Parents. J Homeop Ayurv Med. 2014;3:159
86. Naveen D and Praveen kumar T. Ayurvedic Resolution to Migraine. J Homeop Ayurv Med. 2014;3:160.
87. Pankaj G. Pro-angiogenic and Angiostatic Compounds from Terrestrial and Marine Sources. J Homeop Ayurv Med. 2014;3:161.
88. Nazmul Huda MD, et al. Clinical Evaluation of an Ayurvedic Preparation for the Treatment of Iron Deficiency Anemia in Patients. J Homeop Ayurv Med. 2014;3:162.
89. Zyothi KSN, et al. Identification of a Proteinaceous Alpha Amylase Inhibitor from a Medicinal Herb Oxalis corniculata L. (Oxalidaceae). J Homeop Ayurv Med. 2014;3:165.
90. Jayram H, et al. Ayurvedic Regimen in Hemorrhagic Ovarian Cyst without Peritoneal Bleeding: A Case Report. J Homeop Ayurv Med. 2014;3:164.
91. Bagherian M, et al. The Effects of Homeopathic Medicines on Reducing the Symptoms of Anxiety and Depression: Randomized, Double Blind and Placebo Controlled. J Homeop Ayurv Med. 2014;3:167.
92. Nimkar OD. Critical Review: Bhasma Kalpana. J Homeop Ayurv Med. 2014;3:168.
93. Perera BPR. A Study on the Plants Used as Chopachini. J Homeop Ayurv Med.2014;3:170.
94. Mahajon B, et al. Preliminary Analysis of Botanical and Phytochemical Features of *Kamalu* - Root of *Flemingia strobilifera* (L.) W.T. Aiton. J Homeop Ayurv Med. 2015;4:171.
95. Kishore L, et al. Role of Gymnema sylvestre as Alternative Medicine. J Homeop Ayurv Med. 2015;3:172.
96. Pravin M, et al. A Critical Analysis of Dentation and Dental Care in Ayurveda. J Homeop Ayurv Med. 2015;4:175.
97. Alam A, et al. Time Tested Safe and Effect Oriented Drugs in Unani Medicine for Dyslipidemia-A Review. J Homeop Ayurv Med. 2015;4:176.
98. Sanap AD, et al. A Unique Ayurvedic Preparation, *Kupipakva rasayana*: A Review. J Homeop Ayurv Med. 2015;4:177.
99. Goel S, et al. Ayurveda as an Adjuvant Medication for Combating Cancer: A Review. J Homeop Ayurv Med. 2015; 4:178.
100. Baur-Mueller B. The Treatment of Herpes Zoster and Post Zoster Neuralgia with Acupuncture and Western Herbs in Chinese Medicine. J Homeop Ayurv Med. 2015;4:179.