

JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH

How to cite this article:

SINGH S, GUPTA M , GAUTAM S. ADAPTOGENIC POTENTIAL OF HERBAL IMMUNOMODULATORS AS NEW THERAPEUTIC APPROACH TO COMBAT SWINE INFLUENZA A/H1N1 CRISIS. Journal of Clinical and Diagnostic Research [serial online] 2010 August [cited: 2010 August 31]; 4:3003-3005.

Available from

http://www.jcdr.net/back_issues.asp?issn=0973-709x&year=2010 &month= August &volume=4&issue=4&page=3003-3005 &id=908

VIEW POINT

Adaptogenic Potential Of Herbal Immunomodulators As New Therapeutic Approach To Combat Swine Influenza A/H1N1 Crisis

SINGH S, GUPTA M , GAUTAM S

ABSTRACT

This short communication makes use of Mashelkar's "Golden Triangle" of scientific, modern and traditional medicine as a unified approach to combat Swine Influenza A/H1N1 crisis in a safe, cost-effective manner. It considers the theoretical approach that can be effectively utilized when scientific systems take plunge into the unfamiliar waters of Ayurvedic biology. This paper proposes herbal immunomodulators as effective adaptogens along with neuraminidase inhibitors for primary prevention. Finally, in our fight to control H1N1, there is a golden opportunity to bring these different systems together.

Key Words: Herbal Immunomodulators, Neuraminidase Inhibitors, Golden Triangle Biological Intelligence, Negentropy, Traditional medicine, Ayurveda

Department of Physiology
University College of Medical Sciences
Dilshad Garden, Delhi-95
India.

Corresponding Author:
Dr Satendra Singh, M.D., F.S.S,E-mail:
dr.satendra@gmail.com
Ph: +91-9996062205

Global Pandemic: Growing Tentacles

In April 2009, a new strain of the influenza virus, A/H1N1 began to spread in several countries around the world from Mexico. Very quickly, the pandemic alert level of the World Health Organization (WHO) rose to Phase 6, indicating that a full global pandemic was under way [1]. Recent events indicate the fear among the masses of a disease that has now claimed deaths in all parts of the world. The fear is further compounded by the concurrent common or seasonal flu epidemic that kills lakhs every year across the globe.

Modern Medicine + Modern Science: Where They Failed

It has been said that western medical science lacks a solid philosophical and theoretical approach to disease cognition and therapeutics [2]. Society is rapidly losing its battle against re-emerging infections with H1N1 which are threatening to intensify in the fall with a more virulent strain.

Though the newer neuraminidase inhibitors Oseltamivir and Zanamivir are effective, Tamiflu-resistant strains have also appeared. These drugs are not that cost effective.

There is no vaccine to protect humans from swine flu. The seasonal influenza vaccine may provide partial protection against swine flu H3N2 viruses, but not the swine H1N1 virus. This novel influenza virus needs drastic and intense precautionary measures to make it containable and preventable [3]. The immune response to the neuraminidase protein can contribute to protection, but immunity to the viral internal proteins is generally not protective. Stimulating immune function would transform the prevention, treatment, research and economics of infectious disorders. Immunomodulation is propagandized as unavailable, but is once stimulated; an immune system is likely to be effective against all strains.

Traditional Medicine: Scientific Repatriation

According to Olade's systemic theory Life = E, I, O, where O is the integrity of its organization, E is the functional organic energy reserve and I is the level of active biological intelligence. His unified theory of living systems further postulates that survival potential, H, of an individual, is effectively

equal to the product of these three ($H = O \times E \times I$) [4].

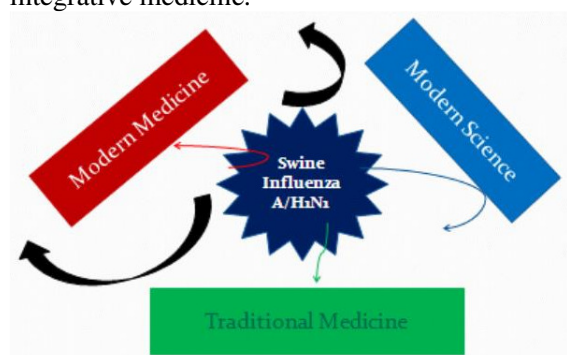
The integration of indigenous knowledge is not unscientific."Traditional knowledge" is not recognized as "knowledge" by all who study it, since it includes beliefs, values and practices. Currently, only a handful of nations offer explicit *sui generis* protection for traditional knowledge and India is a leading nation among them. Not only this; India is also called the botanical garden of the world as it is the largest producer of medicinal herbs [5]. However, in no way does ayurveda mean only herbal products. The buzzing of words like ayurvedic biology and ayugenomics at the second world ayurveda congress testifies this [6].

Golden Triangle

The lacunae in controlling the H1N1 crisis have highlighted the need of the nondiscriminatory involvement of integrative medicine. Between the extremes of panic and complacency lies the solid ground of Traditional knowledge. Professor Mashelkar, Director-General of India's Council for Scientific and Industrial Research (CSIR) used the term, 'Golden Triangle' (Z), for the first time at the valedictory envoi of the Chitrakoot Declaration.

Modern Medicine + Modern Science + Traditional Medicine = Golden Triangle

He set the tone further at the Second World Ayurveda Congress where he stressed that the world is going digital, herbal and spiritual and India should bridge the gap between traditional medicine, modern medicine and modern science [Table/Fig 1]. His calls the multi-centric trials of Ayurvedic biology [8] as ample evidence for the unification of integrative medicine.



[Table/Fig 1]. Need of the hour: Bridging the gaps

Herbal Immunomodulators: The Wonder Drug

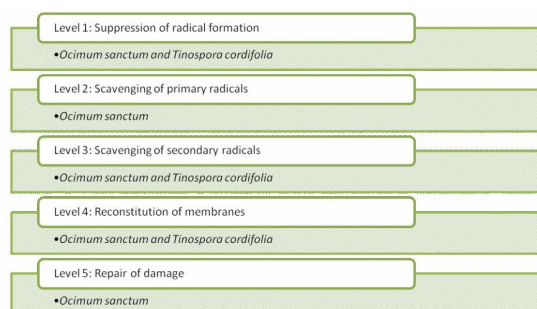
The number of potential synergistic combinations of herbal formulations, in terms of the active principles present in plants, is exponential [2]. We propose phytotherapy using a combination of *Ocimum* and *Tinospora* which can offer a potential therapeutic modality for at least controlling Swine flu. This novel approach in the modulation of cytokine expression is through the use of a class of herbal medicines which are known as immunomodulators:

1. *Ocimum sanctum*

Ocimum sanctum, has been extensively evaluated for its adaptogenic potential and its effect on the immune system. The existence of ergogenic, anti-oxidant [9], immunostimulant, anti-inflammatory, antibacterial, antimutagenic and analgesic activities in a single entity makes it unique [10],[11].

2. *Tinospora cordifolia*

Its notable medicinal properties which are reported are anti-diabetic, anti-periodic, anti-spasmodic, anti-inflammatory, anti-arthritis, anti-oxidant, anti-allergic, anti-stress, hepatoprotective, immunomodulatory and anti-neoplastic activities [12]. The recent data obtained about *Tinospora cordifolia* suggest that it may induce genotypic adaptation, further opening the arena for more research and experimentation that it produces immunostimulation [13]. [Table/Fig 2]. shows the mechanism of action of both of these synergistic herbal neotropes [14].

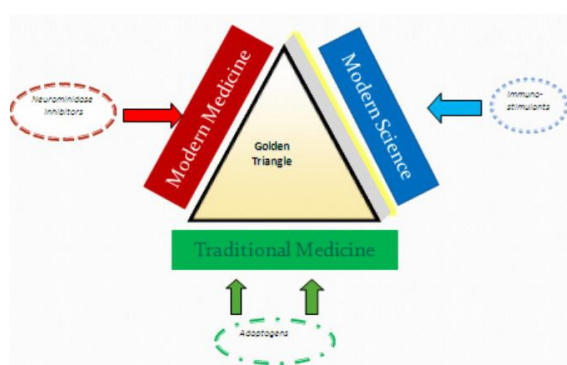


[Table/Fig 2]. Mechanism of Action of Herbal Immunomodulators
Reconstructed from J Clin Biochem Nutr. 2007 July; 41(1): 1-11.

Bridging The Gap Between Traditional And Contemporary Medicine

Mashelkar’s hypothetical Golden Triangle increases the survival potential, H, of Olade’s unified theory of living systems by bringing these three diverse systems together. Traditional Medicine forms the foundation of the triangle. The left limb of the triangle can be further strengthened by negating the shortcomings of Modern Medicine by substituting herbal adaptogens which are cost effective and without any side-effects in comparison to neuraminidase inhibitors. Modern Science as the right limb of the triangle, contributes immunostimulation. Phytomedicines can increase E, I and O in the living systems via entropy reduction [4]. The healing potential of Biological Intelligence (BI) has been defined as the mathematical product of its immune, cellular and neuroendocrine states, i.e. $BI_{(healing\ potential)} = I^1 \times C^1 \times B^1$ [15]. This makes it possible to enhance BI by increasing any of its three essential components, as seen with immune modulators.

Traditional medicine therefore, provides a solid foundation for the pillars of modern medicine and modern science to act in unison to combat H1N1, as shown in [Table/Fig 3]. Individual systems may enhance one or two sides of the health triangle, but to be effective *in toto* against the fight with this global pandemic, herbal negentropy needs to be supported by immunostimulant and neuraminidase inhibitors.



[Table/Fig 3]. The Golden Triangle to combat H1N1 crisis

Conclusion

In order to elucidate ethnomedicine, the additional mechanisms by which these adaptogenic

immunomodulators act, need further elaboration by more detailed studies. In the absence of vaccines and herd immunity, the phytotherapy using *Ocimum sanctum* and *Tinospora cordifolia* as an adjuvant with modern science and medicine, could unravel a new cost effective therapeutic approach for the primary prevention of H1N1. Finally, in our fight to control H1N1; there is a golden opportunity to bring these different systems together.

Acknowledgement

We would like to thank Dr Devasagayam for giving us his consent to use part of his Table in Fig.1.

References

- [1] WHO. Influenza A (H1N1). <http://www.who.int/csr/disease/swineflu/en/index.html>
- [2] Olalde Rangel JA. The systemic theory of living systems and relevance to CAM. Part III: the theory. *Evid Based Complement Alternat Med* 2005;2: 267-75.
- [3] Galwankar S, Clem A. Swine influenza A (H1N1) strikes a potential for global disaster. *J Emerg Trauma Shock*. 2009 ; 2(2): 99-105.
- [4] Olalde Rangel JA. The systemic theory of living systems and relevance to CAM. Part I: the theory. *Evid Based Complement Alternat Med* 2005; 2: 13-18
- [5] Seth S.D, Sharma B. Medicinal plants of India. *Indian J. Med. Res.* 2004 ; 120:9-11.
- [6] Mashelkar RA. Second World Ayurveda Congress (Theme: Ayurveda for the Future)—Inaugural Address: Part II. *Evid Based Complement Alternat Med* 2008; 5: 243-45
- [7] Mashelkar RA. Second World Ayurveda Congress (Theme: Ayurveda for the Future)—Inaugural Address: Part I. *Evid Based Complement Alternat Med*. 2008 June; 5(2): 129-131.
- [8] Mashelkar RA. Second World Ayurveda Congress (Theme: Ayurveda for the Future)—Inaugural Address: Part III. *Evid Based Complement Alternat Med* 2008; 5: 367-69.
- [9] Sethi J, Singh S, Sood S, Talwar A, Shashi S. Antistressor activity of *Ocimum sanctum* (Tulsi) against experimentally induced oxidative stress in rabbits. *Methods Find. Exp. Clin. Pharmacol* 2007; 29(6): 411
- [10] Gupta SK, Prakash J, Srivastava S. Validation of traditional claim of Tulsi, *Ocimum sanctum* Linn. as a medicinal plant. *Indian J Exp Biol.* 2002; 40:765-773.
- [11] Singh S, Taneja M, Majumdar DK. Biological activities of *Ocimum sanctum* L. fixed oil--an overview. *Indian J Exp Biol.* 2007; 45(5):403-12.
- [12] Singh SS et al. Chemistry and medicinal properties of *Tinospora cordifolia* (Guduchi). *Indian Journal of Pharmacology* 2003; 35: 83-91
- [13] Rege NN, Thatte UM, Dahanukar SA. Adaptogenic properties of six rasayana herbs used in Ayurvedic medicine. *Phytother Res.* 1999;13(4):275-91
- [14] Vaidya A, Devasagayam T. Current Status of Herbal Drugs in India: An Overview. *J Clin Biochem Nutr.* 2007; 41(1): 1-11.
- [15] Olalde Rangel JA. The systemic theory of living systems and relevance to CAM. Part II: the theory. *Evid Based Complement Alternat Med* 2005; 2: 129-37