

INTRODUCTION

Rajyakshma (Tuberculosis) is one of the oldest disease of the mankind. Even on the start of the new millennium, it poses to be a threat to the community not only to developing countries but also to the developed one, due to increasing trend of multi-drug resistant patients (MDR).

In vedic literature prior to written systemic development of Ayurveda four super specialties like *Bhutavidya*, *Sarpavidya* (dealing with poisons and venoms), *Rasayana* and *Vajikaran* chikitsa were existed. After establishment of Atreya and Dhanwantari school four more discipline was introduced like *Kayachikitsa*, *Shalyatantra*, *Shalakyatantra* and *Kaumarbhritya*. *Sarpavidya* was restructured and renamed as *Agadatantra*. This change is to be attributed to the influence of new schools of philosophy for the need of the society proclaimed as Astanga Ayurveda.

The principles of Ayurveda are developed on interesting philosophy and unique scientific background with reasoning prevailing in those days. In the present millennium progress on bio-medical sciences, added with plethora of knowledge on new technology, along with advances in molecular biology, genetic engineering to gene therapy is boon to the health care delivery system. Understanding on the disease processes diagnostic and therapeutic management is apparent to be a hope finding solution.

In the realm of science, it is realized that the ancient medicine emphasized the science as the father of knowledge and experiences as the mother of science. With the perpetuated traditional knowledge many unfold events of life remained unanswered amidst the enormous growth of science.

Human development is intricated with the origin of universe. Signs of life or aliveness is expressed even in a minute functioning cell which is regulated by *Paramatma* function. Recent advances revealed that most of the biological activities are regulated by the pre-determined gene expression. It is also considered that the signal transduction is the index of gene expression to any particular mechanism of action. Instincts of these actions could be correlated with Ayurveda expressed in different format.

Background

J.B. Roy State Ayurvedic Medical College & Hospital has a glorious past established on 10th February, 1916. From its very inception this institution bearing a memorable history. With in a short period of its existence the institution earned a good name and fame as front liner, developed as peer institution in India for unique type of teaching methodology and research activities. So far, known research in this Ayurvedic institution was started in 1921, may be the pioneering efforts. Systematic research were carried out to develop newer Ayurvedic dosage forms. Initiative was taken by Kabiraj Gananath Sen to prepare injectables medicine from indigenous sources and those were tried on hospital patients. Out of the contributory research alongwith Dr. Kartick Chandra Bose, Medical Advisor of the Bengal Chemical and Pharmaceutical Works was fore runner in the development of 'Reserpine' from *Rauwalfia serpentine*, a major break through of Ayurveda on the official drug development.

*"In 1931 two Calcutta doctors Dr. Kartick Chandra Bose a famous allopath and Dr. Gananath Sen, an Ayurveda published in the medical journal a scientific paper on the efficacy of the plant *Ranwalfia serpentine* for the treatment of some major psychotic disorders"*

(Statesman January 13, 1993)

In this Ayurvedic institution a full-fledged research unit was established in 1937 with separate budget heads. In 1933 Patipukkur T.B. Hospital was started for the treatment of Pulmonary Tuberculosis with Ayurvedic Medicine. The therapeutic management

schedule with Ayurvedic drug was discontinued from 1.11.1947 by introduction of synthetic AT Drugs. The main therapy for tuberculosis management was adopted following the Ayurvedic principles. The drugs were prepared for this purpose in their own pharmacy containing mercury, gold, calcium and fresh juice of herbs cultivated in their garden. Bhallataka (*Semicarpus anacardium*), Mallasindura, Vasaka (*Adatoda vasika*) and Pulmo-9 herbomineral preparations. Vasanta Malati, Kachanabhra rasa, Rajmriganka rasa etc. were under use. On the available published information it is evidenced that the results of Mallasindur (S.K. Roy, 1966), Rasun (R.M. Goswami, 1966) and Bhallatak Rasayana were found to be encouraging. Interestingly, it was observed that Vasaka could inhibit growth of *Microbacterium tuberculosis* without affecting non acid fast pathogens. The Ayurvedic regimen was continued for more than 13 years. The available statistics is of immense value. The statistics are also recorded in WHO publication written by Mrs. Sailaja Chandra, Secretary, ISM, Ministry of Health & F.W., Govt. of India appended below.

“A few Research outcomes relevant for Public Health from the Indians systems of Medicine: Tuberculosis - The Patipukur TB Hospital was established in Calcutta in 1933 specifically for managing TB patients through Ayurvedic drugs. The Ayurvedic management was discontinued in the year 1947 with the development and availability of anti TB drugs. The regimen of modern TB drugs was started and before about 2766 patients were treated with a cure rate of 11.42% and a death rate of 40.9%. When a group of patients on anti TB drugs received supplementary Ayurvedic drugs, the cure rate was 41.3% and the death rate was 3.8%. Studies have also been conducted to assess the role of Ayurvedic treatment in resistant cases (Journal of Health & Population in Developing Countries, Vol. 3(1), page 109, 2000, WHO publication)”.

The description of Rajyakshma (tuberculosis) is available from the dawn of civilization through the oldest inscriptions of the vedic literature. In the Atharva Veda, Rajyakshma is described as Rajaroga with two meanings like, king of the all diseases and diseases of the king, sympolising with Zodiac King moon (Chandra the King) who developed Rajyakshma after excessive sex indulgence with Rohini, one among his twenty eight wives. In the language and formats of presentation one may correlate the cause of tuberculosis with excess sex may lead to nutritional deficiency and degenerative change ultimately, the destruction or deficiency of immuno material ‘OJA’ which is essential for preservation and maintenance of health.

In vedic literature Rajayakshma was known with different nomenclature. Each of the synonyms direct towards the understanding on the etiopathogenesis, endemecity and nature of propagation. One such term '*Yakshma*' refers to speed on, to move, means diseases which spread from one person to other. This is a wasting disease and it spreads like flying birds originates from invisible germs present in blood (raktaja krimi). Atikrisha i.e. excessive emaciated person are susceptible to Rajayakshma (tuberculosis) one of the varieties of Astanindita purusa. In the treatment of tuberculosis sun bath in rays, drinking plenty of water was advised. As medicine Arjuna (Terminalia arjuna), Deer horn and meat juice of lion, tiger, deer and goat are mentioned.

Tuberculosis commonly affecting the lungs, known as pulmonary tuberculosis. The incidence and prevalence of Rajyakshama (tuberculosis) is of ancient origin. It is estimated that tuberculosis kills three million people a year. Unless immediate action is taken it will claim more than 30 million lives globally during this millennium. Tuberculosis being the leading cause of death from single infectious disease, the forecast scenario of Indian population is very gloomy. It kills more than 2000 people a day –one every minute die of TB in our country and those are mostly adults. Estimated tuberculosis patients are 14 million in the world out of which 3.5 million are sputum positive.

Rajayakshma being a disease syndrome relates with loss of dhatus (nutrients) and ojas (vitality). Development of symptom complex and manifestation of the disease process is dependent on the severity, chronicity and quantum of dhatu loss in individuals.

After epoch, making discovery of streptomycin and other anti-tubercular drugs, the hospital authority started using Streptomycin, INH and PAS alongwith Ayurvedic drugs. In this change over situation role of Ayurvedic medicine became secondary and became limited to the treatment on complication like hemoptysis, cough, for body weight gain, anorexia, including G.I.T. problems. Still today, combined therapy is continuing with positive results but those information are in spares and not assessed scientifically. The present study was planned with keeping in view the current status of PTB treatment and resurgence to tuberculosis as a global emergency. As a working hypothesis it was considered that the treatment of PTB before streptomycin discovery (1943) and in the new millennium treatment with cure rate of MDR are at parlance. The present study was aimed to validate scientifically the responses observed so far on add on therapy by long term using experiences.

Present investigation “Study on the effect of Ayurvedic Medicine on the bio-availability of Anti-tubercular drugs” was planned with the following aims and objective. Pulmonary tuberculosis (PTB) being a global emergency is a threat to the medical world. Increasing trend of Multi drug resistant (MDR) patients is a great medical problem.

Keeping in view of the MDR patients and possible toxic component of the Anti-tubercular Drug (ATD), therapy the present study started with two objects:

- (i) Whether supplementation of Ayurvedic drugs alongwith AT Drug improve the quality of life and can prevent the toxicity or not?
- (ii) Whether this module can help in the bioavailability of AT Drug and could help in quick recovery?