

Ayurvedic Aspect of Bacteria and Bacterial Food Poisoning

Savita Saini* and Sharad Maroti Porte

National Institute of Ayurveda, Jaipur, Rajasthan, India

Abstract— Bacterial Food Poisoning is a common name given to predominantly gastro-intestinal infections which arise after the consumption of food or drink that is contaminated with disease-causing bacteria. Over 250 organisms are known to cause food borne illnesses. Ayurveda is an ancient medical science and has described the food poisoning indirectly in the form of Anna Vishaktata. The aims of present study are to collect, elaborate, evaluate and discuss the Bacteria and Bacterial Food Poisoning in aspect of Ayurveda. In Ayurveda there are so many words are used for bacteria like invisible krimi, Vaikaric krimi, Agantuj, Rakshasa, Bhut and Pisacha directly, indirectly. In the 19th century Acharya Gannath Sen translated the word bacteria in the form of Jeevanu which is causative factor for many diseases. The infectious food poisoning which may be due to ingestion of food/water contaminated with poisons of Agantuj (pathogens including bacteria) is also found in Ayurveda. The infectious disease is given under Aupasargik Vyadhi and Epidemiology is elaborated under the heading of Janapadadhwansa in Ayurveda. The utilization of unhygienic utensil, uncooked, semi cooked food, decomposed meats etc. are the causes of food poisoning as per Ayurveda which is similar as described in Modern Medicine. There are abundant herbal, mineral and herbo-mineral ayurvedic drugs useful for bacterial food poisoning which have significant in vitro antibacterial efficacy on enteric pathogens.

Index Terms— Food Poisoning, Bacterial Food Poisoning, Anna Vishaktata, Jeevanu.

I. INTRODUCTION

Food poisoning is a common, usually mild, but sometimes deadly illness. Several factors could contribute to food poisoning. Food poisoning comes from eating foods that contain germs like pathogenic bacteria or toxins, which are poisonous substances. Food borne illnesses are prevalent in all parts of the world, and the toll in terms of human life and suffering is enormous. Contaminated food contributes to 1.5 billion cases of diarrhea in children each year, resulting in more than three million premature deaths, according to the World Health Organization (WHO).

The World Health Organization (WHO) reports that each year two billion illnesses are caused by unsafe food; globally this number is growing. In Asia 700,000 people have died each year as a result of food poisoning illnesses. Under the Integrated Disease Surveillance Project (IDSP) in India, food poisoning outbreaks reported from all over India in 2009 increased to more than double as compared to the previous year.

According to the Sushruta, Krimidosh is one of the causes of Atisar, which means micro-organisms affect the human being and cause many infectious diseases. Yajurveda also mentions the Food Poisoning caused due to eating in unhygienic utensils. Ayurveda has described the pathogenic micro-organisms indirectly in the form of invisible krimi responsible for producing many diseases.

II. MATERIAL AND METHOD

The material about Bacteria and Bacterial Food Poisoning was collected from the text books of Atharva Veda, Yajurveda, Kautilaya Arthashastra, Brihatrayi and Laghutrayi. The research articles of concerned subjects published in national-international journals are referred and discussed. The text book of Modern Medicine was also referred whenever necessary.

III. AYURVEDIC CONCEPT OF INFECTIOUS DISEASE

Acharya Charak stated that there are two factors responsible for disease: one is internal factor meaning Doshavikriti and second is external factor meaning Agantuj (contaminated water, food, microbes, trauma). Acharya Susruta has described that the diseases like Kustha (Leprosy), Jwara (pyrexia), Shosha (tuberculosis)

are contagious and spread by direct contact or by use of contaminated objects. All forms of Prasnaga (contacts), Gatra Sansparsha (direct contacts), eating together, sleeping together, sharing and using of others' cloths, ornaments, ointments etc. leads to infectious diseases spread from person to person.

Acharya Charaka has described the role of Vayu (air), Udak (Water), Desha (soil and area), Kala (Time) responsible for Janapadodhwansa (epidemics), most of the infectious diseases and contamination of physical, chemical and biological factors in occurrence of disease.

IV. AYURVEDIC CONCEPT OF BACTERIA

In Athrvaveda two types of krimi (organism) are described — Drisya (visible) and Adrisya (invisible) — and minute forms of krimi are called Kshullaka. Athrvaveda has also mentioned that there are two types of krimi namely Durnam which means pathogenic and Sunam which means non-pathogenic. Acharya Charak also stated two types of krimi: one is Vaikaric meaning pathogenic and second is Sahaj which means non-pathogenic.

In the 19th century, Acharya Gananath Sen translated bacteria as Jeevanu, which is responsible for most of the infectious diseases and Enteric fever under the heading of Antrik Jwar. He stated that it is due to ingestion of bacterial contaminated food and water which is spread by stool and urine.

V. AYURVEDIC CONCEPT OF BACTERIAL FOOD POISONING

According to Atharvaveda, jantu (organism) can originate anywhere in the environment. They grow on the earth, in forest, water, air, soils also in medicinal plants, food material, drinks, also in birds and animals. These organisms may grow wherever they get favourable conditions. Spreading of krimis takes place through food, gruel, milk and water. Athrvaveda also stated that microbes may invade uncooked and semi-cooked food and contaminate them.

VI. AYURVEDIC ASPECT OF NIDAN (CAUSES)

Charak, Sushrut and Vagabhat have accepted that food material whether fresh or rotten, is one of the causative factors for krimiroga. Charak further stated that Puti ahara (fetid), Klinna ahara (Putrefied), Sandust ahara (ill disposed) and Asuchi ahara (foul) are synonyms which are used for rotten and contaminated food. Such food material is a good vehicle for Krimi (micro-organism) to get entered in the host.

VII. CLINICAL FEATURES AND MANAGEMENT

A. Clinical Features as Per Ayurveda

Acharya Trimal Bhatt mentioned the clinical manifestation like diarrhea, vomiting, abdominal pain, fever of Agantuj Jwar (Exoteric) due to Visjanya Abhisang (Exotoxin) which mimics bacterial food poisoning. Gananath Sen mentioned Anna Visaj Atisar (Food Poisoning) and its clinical manifestation like diarrhea, vomiting, abdominal pain, fever and thirst — exactly similar to bacterial food poisoning.

B. Ayurvedic Management

Rigveda has mentioned the physician called Rakshoha who manages the invisible minute krimi. Atharvaveda mentions that Agni and Surya have Rakshoghn properties which help to destroy the invisible minute krimi. Acharya Charak has described the YuktiVyapaashrya Chikitsa which is unique three-fold management for disease especially occurring due to any infections: Apakarshana (removal of the causative factor), Prakriti Vighata (interruption in the nature of causative factor) and Nidaana Parivarjana (escaping of causative factor).

The herbal and herbo-mineral compound described in Ayurveda for Atisar can be used as antimicrobial agents for bacterial food poisoning, as the maximum ingredients like Hingula, Parada, Piper longum, Piper nigrum, Berberis aristata, Aconitum heterophyllum, Holarrhena antidysenterica, Woodfordia fruticosa, Limonia acidissima, Zingiber officinale, Plumbago zeylanica, Aegle marmelos, Syzygium cumini, Punica granatum, Acacia nilotica, Alangium salviifolium, Cyperus rotundus, Coriandrum sativum and Asparagus racemosus have antimicrobial activity with special reference to enteric pathogens.

VIII. CONCLUSION

Food Poisoning caused by Bacteria can be managed and prevented successfully by applying the basic concept and drugs of Ayurveda. Ayurveda has also found the description about the infectious and contagious diseases under the heading of Aupsargik and Sankramak Vyadi respectively along with Janapadadhwansa (Epidemiology) of infectious and other diseases. The herbal and herbo-mineral compounds described in Ayurveda for treatment of Atisar have been shown to have significant antimicrobial activity against enteric pathogens, validating their use in bacterial food poisoning.

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