International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

A Critical Analysis of *Vilwadi Agada* in Bacterial Toxicity W. S. R to *Sookshma Visha*

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Abstract: ***Every food we eat, every drink we consume and every bit of air we breathe in contains the presence of thousands of bacteria, most of them are harmless but some of them are deleterious to health. Those bacteria which are deleterious include bacteria which can produce toxin from outside the body which is known as exotoxin and those bacteria which can produce toxin after entering into the body which is called enterotoxin. These toxins at times lead to destruction of immune system which produces many diseases and at times leads to death of the person affected. Visha is defined as any dravya which after entering into the body either affect the health of the person or leads to death of the person. Sookshma Visha is a unique concept of Visha which is mentioned in kriyakoumudi and this is a toxin which is very minute in nature. Vilwadi Agada is a classical formulation which is anti-toxic, anti-microbial and an immunity booster at the same time. This paper is an attempt to analyze the importance of Vilwadi Agada in Bacterial toxin with special mention to Sookshma Visha.***

Keywords: Bacterial toxin, *Sookshma Visha, Vishachikitsa, VilwadiAgada, Visha*

1. Introduction

Bacteria are minute organisms which can produce useful and harmful effect in our body. Those which are deleterious to our body can produce two types of toxins, Exotoxin and Enterotoxin. Exotoxins are toxins which are produced outside the body and Enterotoxins are toxins which are produced inside the body. The bacteria which can produce toxin include Yersinia pestis, Bordetella pertussis, Staphylococcus aureus, Staphylococcus perfringens, Clostridium tetani, Clostridium botulinum etc.

2. Materials & Methods

Sookshma Visha, A concept in *Kriya Kaumudi* is studied in detail and is compared with bacterial toxin and *Vilwadi Agada* is analyzed to know its efficacy in bacterial toxin.

Yersinia pestis is abacterium, which can cause Plague which is a zoonotic disease that spread mostly from rats to humanbeings. In most of the cases, death in plague occurs due to ecchymosis and gangrene formation and in other cases by Toxemia. It can be considered as an exotoxin[1]. Bordetella pertussis causes a disease called Whooping Cough, which is a highly contagious respiratory infection, in which a heat stable enterotoxin is produced[2]. Staphylococcus aureus produces enterotoxin which causes Toxic Shock Syndrome. Toxic Shock Syndrome is a condition in which toxins enter into the blood stream by the use of tampons of certain brand by menstruating woman[3]. Staphylococcus aureus can produce Toxin type of food poisoning. This results from toxins produced by multiplying organisms that has gained access into the prepared food which produce enterotoxin[4]. Clostridium Perfringens is a bacterium that causes gas gangrene. This is an illness produced by myonecrosis of previously healthy skeletal muscle due to elaboration of myotoxins. This is a gangrene which is formed when an open wound is exposed to the bacteria which produce an enterotoxin called Alpha toxin by the muscles[5]. Clostridial Perfringens can also produce Clostridial food poisoning especially when under nourished children who suddenly indulge in over eating of contaminated meat that produce alpha enterotoxin in stomach. Clostridial Perfringens also leads to necrotizing enterocolitis in infants by the beta enterotoxin produced by the bacteria. Clostridium tetani causes Tetanus or Lock jaw, which is a severe acute neurological syndrome caused by Tetanus toxin, Tetanospasmin which is a neurotoxin and exotoxin elaborated by the bacteria[6]. Clostridium botulinum is a bacterium that causes a food poisoning called botulism, caused by the ingestion of preformed botulinum toxin which is an exotoxin in preserved food[7].

Bacteria can be considered as *Shonithaja / purishajakrimi*, which is very minute or *sookshma*in nature[8]. The toxin generated by it can be considered as *Sookshma Visha*, which is a concept from *Kriyakoumudi*. According to *Kriyakoumudi*, a Malayalam text book on *Visha Chikitsa*, *Visha* is classified as *Sthoola Visha* and *Sookshma Visha*. *Sthoola Visha* is sub classified into *Sthavara* and *Jangama Visha* and *Sookshma Visha* is classified on the basis of route of administration into *Halahalam, Kakolam, Kalakootam, Garam* and *Visham. Halahalam* is the toxin that reaches the body through sound and air. *Kakolam* reaches the body through, water, food, wound or ulcer. *Kalakootam* is spread through waves or rays. *Gara* through all the nine orifices and *Visha* through bites, injection or through an orifice[9].

A mature immune cell figures out bodies own cell from a foreign body. When thymus shrinks in response to toxin exposure, there is diminished production of T regulatory cells, which has an important role in regulating the immune system. If the thymus shrinks and T-regulatory cells gets diminished, there is greater potential for immune dysfunction[10].

Vilwadi Agada is a classical antitoxic formulation which is indicated in all types of toxins and also in diseases like *vishoochika, ajeerna, jwara* etc. It can be used both by the diseased and healthy person. It is used in different forms like

anjana, pana, nasya and is widely used for *lepa*. This formulation contains the ingredients like *Bilwamoola, Tulasipushpa, Karanjaphala, Tagara, Rasna, Harithaki, Vibhithaki, Amalaki, Shunti, Pippali, Marich, Haridra, Daruharidra* which are triturated and made fine with goat's urine[11]. Among these ingredients *Tulasi, Karanja, Maricha, Haridra, devadaru* and *harithaki* are *Krimihara* which can be considered as anti-microbial. Drugs like *Harithaki, Amalaki, Pippali* are *rasayana*, which can be considered as Immune boosters[12].

3. Result

Kalakootam of *Sookshma Visha* can be considered as bacterial toxin, since, both bacterias and *Kalakootam* enters into the body mostly through food, water, ulcers or wound. Moreover, both are minute in nature. Bacterial toxins are produced by bacteria and *Kalakootam* is a type of *Sookshma Visha*. Certain ingredients of the antitoxic formulation *Vilwadi Agada* are *Krimihara* which is antimicrobial and certain drugs are *rasayana* which are considered as immune boosters. Bacterial Toxins can lead to immune dysfunction, so it is thought to be beneficial in that perspective too.

4. Discussion & Conclusion

All *Agada's*are *rasayana* naturally as they are *Ojo vardhaka* and *Ojas* can be considered as immune boosters. So, it is imperative to use *Vilwadi Agada* in bacterial toxin which can act as antitoxic, antimicrobial and immune booster. Several studies were carried out to know the presence of toxins in human infection, similarly the role of *Vilwadi Agada* in different bacterial toxin need to be analyzed properly. Future efforts should concentrate in the development of invitro and invivo studies in this frame of reference.

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