



## Review Article

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### PUBLIC HEALTH IMPORTANCE OF SHATKRIYAKALA IN RELATION TO NATURAL HISTORY OF DISEASE

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#### ABSTRACT

Kriyakala, also known as Shatkriyakala, is predominantly a concept of Ayurveda which describes different phases of disease formation in its own unique way. This concept can be comparable with natural history of disease in modern medicine. Though many authorities compare it simply with pathogenesis but a meticulous look will reveal its relation with natural history of disease. A good understanding of natural history of disease helps to frame public health intervention strategies, more specially the disease prevention stratagem. Similarly a scrupulous insight about Kriyakala will also help us to frame public health intervention strategy. Both modern medicine and public health describes three different types of prevention measures such as primary prevention, secondary prevention and tertiary prevention which can appropriately be applied to different stages of natural history of disease with their modes of intervention. The same concept can also be applied to Shatkriyakala with appropriate intervention strategies to halt the progression of a disease process. This document tries to understand the concept of Kriyakala in the light of natural history of disease and analyses various intervention strategies which are important from the disease control perspective.

**Keywords:** Ayurveda, Kriyakala, Natural History of Disease, Public Health

#### INTRODUCTION

Ayurveda is believed to be the oldest medical science of human civilization. It is more clearly the science of life as it transcends the mere treatment of disease and embraces a wide array of principles and practices which deals with each individual in entirety. Postulations proposed by Ayurveda elites are of perennial relevance and many of those hold good value even today. Some of the contemporary concepts can be understood by the same age old principles and practices of Ayurveda.<sup>1</sup> Kriyakala is one such age old principle described in classical Ayurveda treatises. Kriyakala, also known as Shatkriyakala, is predominantly a concept of Ayurveda which describes different phases of a disease formation in its own unique way. This concept can be comparable with natural history of disease in modern medicine. Though many authorities compare it simply with pathogenesis but a meticulous look will reveal its relation with natural history of disease. Here, it is important to mention that natural history of a disease includes both pre-pathogenesis stage and the pathogenesis stage as well. A good understanding of natural history of disease helps us to frame public health intervention strategies, more specially the disease prevention stratagem. This point is of utmost importance as the ancient Ayurvedic texts typically begin with a thorough description of strategies of prevention before discussing modalities for treatment.<sup>2</sup>

As per the classical treatise of Ayurveda, Kriyakala has got six different stages of disease development; hence Kriyakala is also called as Shatkriyakala. Sushrut, in his classical text "Sushrut Samhita", has described Kriyakala as per the following six stages.<sup>3</sup>

#### Sañcaya (Stage of Accumulation)

Sañcaya is the first stage of Shatkriyakala. Poor diet, negative thoughts and feelings, or an inappropriate

lifestyle contribute to the buildup of humoural imbalance. At this stage symptoms are normally vague and ill defined.

#### Prakōpa (Stage of Vitiation)

Prakōpa is the second stage of Shatkriyakala. In this stage the humours (Dosha) get vitiated or aggravated. The humoural imbalance overflows and the first sign of illness appear.

#### Prasara (Stage of Dissemination)

Prasara is the third stage of Shatkriyakala and marks with the dissemination of vitiated humours to different parts of the body. Symptoms can occur sporadically and in different areas. It is difficult to diagnose the problem with traditional western methods at this stage.

#### Sthānasamśraya (Stage of Localization)

Sthānasamśraya is the fourth stage of Shatkriyakala and marks with the localization of vitiated humours at a particular organ or organ system.

#### Vyakti (Stage of Manifestation)

Vyakti is the fifth stage of Shatkriyakala and marks with the clinical manifestation of signs and symptoms. At this stage a disease become evident and clinically recognizable.

#### Bhēda (Stage of Complication)

Bhēda is the last Stage of Shatkriyakala. This stage is the most advanced stages of a disease process. This stage incapacitates a patient with various forms of complications and disabilities. This stage may end up with recovery, disability or death.

Now let us understand the concept of natural history of disease and its various stages. Every disease in a host

follows a potentially predictable life cycle from onset to final outcome, which is known as natural history of disease. Understanding the natural history of disease is important to clinicians in establishing appropriate treatment and curative prognosis and it is vital to public health professionals in developing effective disease prevention and control strategies. Although the life cycle or the natural history of a particular disease will vary somewhat from individual to individual, and different disease will have their own distinct natural histories, but it is possible to identify four common stages that most disease manifests:<sup>4</sup>

#### **Stage of Susceptibility**

The stage of susceptibility precedes the onset of a disease. This is the stage where the disease is yet to develop but the host is susceptible due to the presence of certain risk factors, be it internal or inherent or intrinsic to the individual or external or extrinsic to the individual. The inherent risk factors are the genetic predisposition, age, immuno-compromised stage, sedentary life style, dietary habits etc and the external risk factor are the environmental pollution, vector density, disasters etc.

#### **Stage of Presymptomatic Disease**

This is the stage where the disease process has begun but no overt signs and symptoms are evident. For communicable disease this stage includes the “Incubation period”, which is the time between the invasion or inoculation of an infectious agent and the manifestation of first sign and symptom of the disease. For non communicable disease this includes, “Latency period” (can be called as incubation period for non communicable disease), which is the time it takes to develop a disease when the etiological factors are in place. This stage also includes cases of subclinical disease, in which a disease is fully developed but the symptoms are not evident in the host, otherwise known as asymptomatic disease.

#### **Stage of Clinical Disease**

This is the stage where the condition is clearly apparent, and the host experiences one or more overt signs and symptoms characteristic of the disease. At this stage the disease is commonly diagnosed and treated by the physicians. Clinical disease may range in degree of severity and advance slowly or rapidly depending upon a variety of host, agent and environmental factors.

#### **Stage of Diminished Capacity**

The final stage of natural history of disease is the stage of diminished capacity which is characterized by convalescent period or a residual disability. Convalescent period follows the completion of clinical disease during which the individual has yet to return to his/her normalcy. Similarly residual disability can result from diseases that produce temporary or prolonged complications.

#### **DELINEATION OF THE CONCEPT**

The concept of Shatkriyakala is of utmost importance from public health intervention point of view and more especially from the perspective of disease control stratagem. Kriyakala gives an opportunity at each stage to

halt the disease process by appropriate measure(s). Kriyakala is similar to what has been described as disease cycle or natural history of disease in modern medicine. The stage of Sañcaya and Prakōpa can be comparable with that of the stage of susceptibility. The stage of susceptibility is also called as stage of “prepathogenesis” by some authorities.<sup>5</sup> In this stage the risk factors and the host should interact with each other in a suitable and favorable environment for the disease to happen. This is called as “Epidemiological Triad” which is especially applicable to infectious disease. This has also been rightly said by Charaka that Bij (Seeds) soaked in Bhoomi (Land and a proper environment) flourishes only in correct time, and Doshas vitiate (Microorganism ought to vitiate Doshas) Dhatus if Dhatu Bala (Immunity) depletes in correct time.<sup>6,7</sup> In the first and second stage of Shatkriyakala the humours (Doshas) get accumulated and vitiated. So certain intervention measures can be put-in-situ to halt the disease progress. As modern medicine emphasizes the primordial and primary prevention at the stage of susceptibility the same could also be applied at this stage to halt the disease progress. This is very much important from community and individual health perspective. The classical treatises of Ayurveda describe certain intervention measures those can appropriately be applied at this stage. The community level examples are; advocacy of proper Dinacharya (Daily health promotional activities) and Ritucharya (Health promotional activities during specific season), Aahara (Specific dietary regimen), Vyayama (Exercise) etc. The basic objective of this stage is to prevent disease before it develops so as to maintain health.

At third and fourth stage the vitiated or aggravated humours start moving and get settled at a particular organ or organ system. This creates lot of confusion before a physician owing to its very nature. At this stage the disease is neither clearly evident nor completely buried. So the diagnosis of a disease becomes difficult at this stage. The modern tools and techniques cannot identify the disease at this stage. This stage is comparable with that of presymptomatic disease where the disease process has already begun but the overt signs and symptoms are not evident. At this stage both the primary and secondary prevention measures can be applied. At this stage we can go for both modes of intervention what has been said in primary prevention besides the modes of intervention of secondary prevention. The modes of intervention in secondary prevention are early diagnosis and treatment. The main objective of this intervention is to prevent disease before it develops so as to maintain health.

The fifth stage of Shatkriyakala is Vyakti where the disease is clinically manifested. This is comparable with the stage of clinical disease in natural history of disease. As this stage is marked with clinical signs and symptoms so the modes of intervention at this stage would be early diagnosis and treatment. The examples at the community level are; early diagnosis by Nadi Pariksha (examination of pulse), Darshana (inspection), Sparshana (palpation), and Prashna (interrogation) etc. and treatment by Shaman (alleviation) and Sodhana (purification) modalities described in Ayurveda. Strictly speaking, early diagnosis cannot be called prevention because the disease has

already commenced in the host. However, since early diagnosis and treatment intercepts the disease process, it has been included in the schema of prevention, in as much as the goal of prevention is “to oppose or intercept a cause to prevent or dissipate its effect.”<sup>9</sup>

The last stage of Shatkriyakala is Bheda which is the most dangerous and complicated stage in a disease process. This stage is comparable with the stage of diminished capacity. This stage may end up with recovery, disability or death. The modes of intervention instituted at this stage, for tertiary prevention, are disability limitation and rehabilitation. The examples at community level are Shaman (alleviation) and Sodhana (purification), Pancakarma cikitsa (Five modalities of treatment). The sequences of events leading to disability and handicap have been stated as follows:<sup>9</sup>

Disease → Impairment → Disability → Handicap

The concept of “disability prevention” relates to all the level of prevention: (a) reducing the occurrence of impairment, viz. immunization against polio (Primary prevention); (b) Disability limitation by appropriate treatment (Secondary prevention); and, (c) preventing the transition of disability in to handicap (Tertiary prevention).<sup>10</sup>

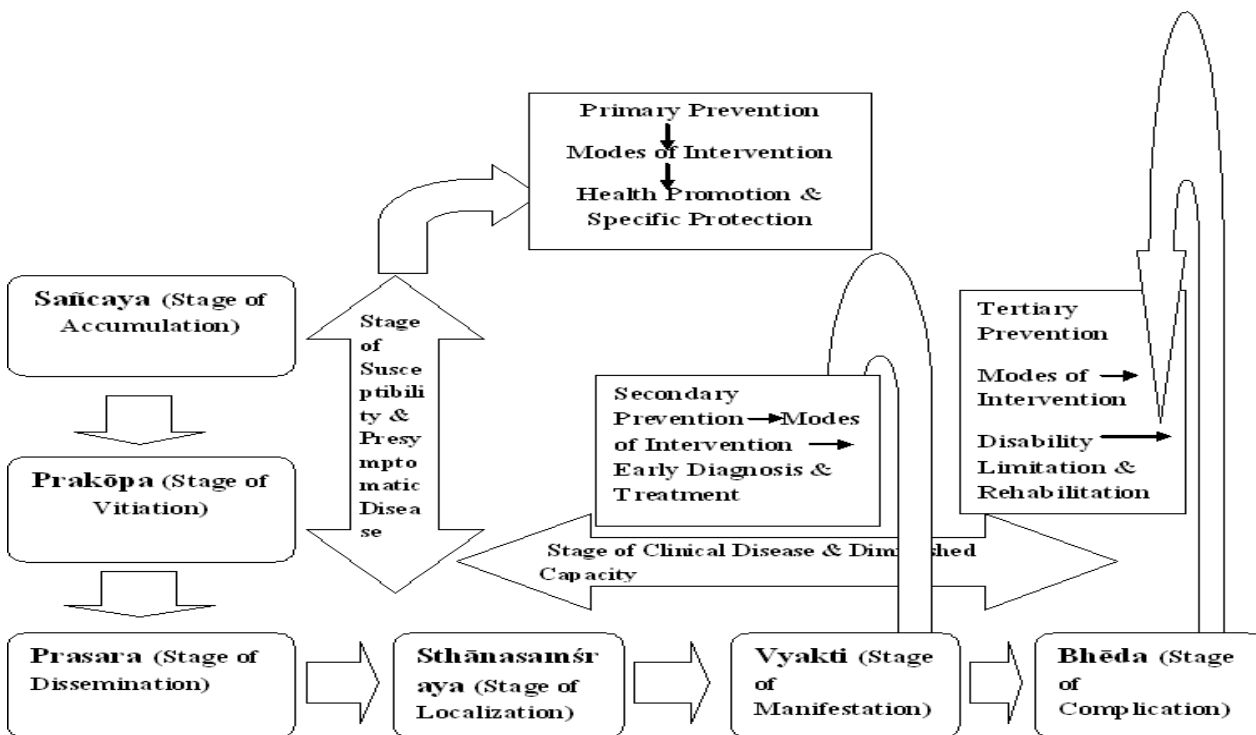
## CONCLUSION

The public health importance of Shatkriyakala cannot be neglected as it provides every chance to halt the disease process at each of its stage. The knowledge of kriyakala is highly essential to frame disease control and prevention strategy. The importance of prevention has always been emphasized by Ayurveda elites. Charaka emphasizes on the maintenance of health. According to him one should take care of one’s own health by neglecting all other things because if the body is not healthy nothing matters. He again says a wise person should perform such actions which are good for his body as the officer in charge of the city and the charioteer protects the city and the chariot respectively. Sharangdhara, another proponent of Ayurveda, has said that no creature in this earth is immortal, it is impossible to prevent death, but it is possible to prevent disease, so one should try for that which is preventable. So the age old principle of Shatkriyakala could be of immense help for a public health professional who is interested to halt the disease progress in the community and is same for a physician who is interested to halt the disease progress of an individual.

**Table 1: Stages of Shatskriyakala and their public health importance with examples at field level**

Stages of Kriyakala	Levels of Prevention	Modes of Intervention	Example at Community Level	Main Purpose
Sañcaya and Prakōpa / Stage of Susceptibility	Primordial and Primary Prevention	Health Promotion and Specific Protection	Advocacy of proper Dinacharya (Daily health promotional activities) and Ritucharya (Health promotional activities during specific season), Aahara (Specific dietary regimen), Vyayama (Exercise)etc.	To prevent disease before it develops so as to maintain health
Prasara and Sthānasamśraya/ Stage of Presymptomatic Disease	Primary and Secondary Prevention	Health Promotion and Specific Protection; Early Diagnosis and Treatment	Disease diagnosis by Nadi Pariksha (examination of pulse), Darshana (inspection), Sparshana (palpation), and Prashna (interrogation) etc. and Treatment by Shaman (alleviation) and Sodhana (purification)	To prevent disease before it develops so as to maintain health
Vyakti / Stage of Clinical Disease	Secondary Prevention	Early Diagnosis and Treatment	Disease diagnosis by Nadi Pariksha (examination of pulse), Darshana (inspection), Sparshana (palpation), and Prashna (interrogation) etc. and Treatment by Shaman (alleviation) and Sodhana (purification)	To diagnose and treat the disease at the earliest to improve health
Bhēda/ Stage of Diminished Capacity	Tertiary Prevention	Disability Limitation and Rehabilitation	Disability Limitation and Rehabilitation by Shaman (alleviation) and Sodhana (purification), Pancakarma Cikitsa (Five modalities of treatment)	To minimize complications of disease and improve functioning and quality of life

**Figure-1:** Shatkriyakala, its relation with Natural History of Disease with different levels of prevention and modes of intervention



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