

UNDERSTANDING OF SWABHAVOPARAMVAD IN TERMS OF APOPTOSIS: A REVIEW

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ABSTRACT :

The basic principles of Ayurveda are eternal truths, as they are based on sound scientific facts. Among the different fundamentals as described in Ayurveda, the concept 'swabhavoparamvad' is one of the major fundamentals in Ayurveda, which is having great importance in our daily life. Here, *Swabhava* means natural and the meaning of *uparam* is destruction, so the word *swabhavoparam* stands for natural destruction or self destruction. After birth, growth and senility ultimately leading to death are inevitable process. This concept has got very much importance among the living beings because it is a complete physiological event that is going at every moment of our life. Nobody can get rid of this decay process. Whereas on the other hand, Apoptosis is a highly regulated and controlled process that confers advantages during an organism's lifecycle. Apoptosis is so carefully planned out that it is often called programmed cell death. Apoptosis is a morphologically recognizable form of cell death that is implemented by a mechanism that has been conserved throughout evolution from nematode to man. Both these processes are physiological and are important and necessary for human being for maintenance of life. So, here in this article I want to pinpoint the fact that apoptosis is nothing but a part of the concept *Swabhavoparamvad* as both these physiological processes converge into a point that is self destruction.

Key words:: *Swabhavoparamvad*, Self destruction , Apoptosis, Programmed cell death.

INTRODUCTION: In Ayurveda, the human body has been described as a living subject, where the wear and tear is a continuous and perpetual phenomenon. Right from the neonatal life to young age where growth and development occurs, regeneration and degeneration go simultaneously in a balanced manner [1]. Ayurveda mentioned Human body (*sharira*)— '*Shiryate iti shariram*' -Human body is bound to destroy, it is continuously destroying. The doctrine '*Swabhavoparamvad*' which is the theory of natural destruction is totally a physiological process that is taking place in all *bhava padarthas* of this

universe including the human being right from its production. This is not obvious or visible as the process is very quick and because of its rapidity, it is considered that there is no cause in the destruction [2,3]. Acharya Sushruta while mentioning *swabhavabala pravrita roga*, mentioned *mrityu* (death) as one of the natural disease. These natural diseases are due to *swabhava* (nature) and depend on *kala* (time), the examples of natural diseases are *kshut* (hunger), *pipasa* (thirst), *jaravastha* (aging), and *mrityu* (death) etc [4,5]. At the cellular level, death is essential for life. Apoptosis sometimes called "cellular suicide" is a normal programmed process

of cellular self destruction. Even though it involves cell death, apoptosis serves a healthy and protective role in our bodies [6]. Highly regulated programmed cell death plays an important role during normal development. Programmed cell death in the adult is required for tissue homeostasis, elimination of pathogen invaded cells, and wound healing. Normal human tissue homeostasis is estimated to involve the programmed cell death of several billion cells per day [7].

AIMS AND OBJECTIVES:

1. To study the concept of 'swabhavoparamvad' in Ayurvedic literature.
2. To establish the concept of 'swabhavoparamvada' in apoptosis point of view.

MATERIALS: This article is based on a review of Ayurvedic texts. Materials related to the concept of *swabhavoparamvad*, apoptosis and other relevant topics have been collected. The main *Ayurvedic* text used in this study is *Charak Samhita*. We have also referred to the modern texts and searched various websites to collect information on the relevant topics.

DISCUSSION: In Ayurveda the theory of natural destruction or self healing, is termed as *swabhavoparamvad*. Regarding this concept of *swbhavoparamvad* it is told that if there is balance in the causative factors which are responsible for the production of the body elements and if there is imbalance in the causative factors then there is imbalance in the body elements. But both this imbalance and balanced *dhatu*s (body elements) fades away naturally. That means there is destruction of body elements either they are in a state of equilibrium or disequilibrium. Some view this concept as

self healing mechanism of body. Human body is inherently endowed with a unique power of self defense, spontaneous healing against injury and disease. It is a natural phenomenon that is going at every moment of life. Maharishi *Charak* has clearly mentioned that there is cause in the production of existing materials but not in destruction. Because all entities perish in second moment by nature. As regards in the process of destruction it does not need any cause as such. It is automatic. The reason is that the process of destruction is too quick to allow any other causative factors to leave any impact there on. *Chakrapani* commenting on this theory explains this principle of momentary dissolution as '*sadeti*' i.e. quickly and it means it get vanished as soon as they are formed. *Chakrapani* has clarified this matter and said that there is a reason behind the evolution of any *bhava padarthas* (matter) and they exist for some time period and perform their respective functions and after that they die and in their death there are no reasons behind it [8,9].

Apoptosis is an evolutionarily conserved cell death program that is strictly regulated and executed through finely controlled signaling pathways. In multicellular organisms, apoptosis is essential for embryogenesis, development and tissue homeostasis [10,11]. Regulation of the homeostatic balance between cell proliferation and cell death is essential for development and maintenance of multicellular organisms. Physiologic, or programmed, cell death is dependent on a genetically encoded and evolutionarily conserved pathway that induces a form of cellular suicide known as apoptosis. Perturbation of the signaling cascades regulating apoptosis, whether by

extracellular triggers, acquired or germline genetic mutations, or viral mimicry of signaling molecules, can result in a wide variety of human diseases [12]. Apoptosis' (programmed cell death or natural death) as it is a morphologically recognizable form of cell death that is implemented by a mechanism that has been conserved throughout evolution from nematode to man. In the past decade, it has become clear that the regulatory mechanisms controlling programmed cell death are as fundamental, and as complex, as those regulating cell proliferations [13]. Death is a part of life, and at the cellular level it is essential for life. Like a sculptor carving away unneeded pieces of stone. Cell death – apoptosis – shapes our physical features and organs before we born.

Apoptotic cell death is an integral part of cell turnover in many tissues, and proper corpse clearance is vital to maintaining tissue homeostasis in all multicellular organisms. All living tissues have some mechanisms in place to handle corpse clearance, and most cell types possess the ability to phagocytose apoptotic cells, underlining the relevance of this process in metazoan health [14].

In stable cells and certain continuously dividing cells, apoptosis serves to eliminate presumably dysfunctional cells that show homeostatic failure due to oxidative stress, glycation, and DNA damage, thereby maintaining homeostasis in the body. The role of apoptosis in normal physiology is as significant as that of its counterpart, mitosis. It demonstrates a complementary but opposite role to mitosis and cell proliferation in the regulation of various cell populations. It is estimated that to maintain homeostasis in the adult human body, around 10 billion

cells are made each day just to balance those dying by apoptosis [15].

The intensity of global apoptosis and autophagy clearance significantly declines in humans during aging, as aging repress the apoptotic response. Apoptosis increased in these cells or organs is regarded as a protective mechanism of the organism against an accumulation and spread of defective cells, but the preponderance of this dismantling system seems to highlight the age-associated decline and deterioration in tissue and organ structure and function [16].

CONCLUSION: From the above discussion, it can be seen that the concept of *swbhavoparamvad* is flourishing day by day, and it is one of the important factor for human being to survive. The concept of *swabhavoparamvad* is that homeostasis is necessary to maintain health, but natural death of every living object is inevitable. Our body naturally tries to be in homeostasis but natural death is bound to happen. So our cells adopt the mechanism of programmed cell death. Genes are also responsible for programmed cell death. Our understanding of the regulation of programmed cell death in health and disease is far from complete, and the challenge of converting that understanding into new therapeutic modalities has only begun to be approached. Nothing is static in our human body, everything is constantly changing. Every day cells are produced, after completing their scheduled work they die naturally when they undergo senescence and become weak. . Life and death are two sides of a coin, they both go simultaneously. Cells divide to form new cells, again undergo senescence then ultimately leads to cell death, this process continues throughout life.

Research is going throughout the world by applying this very concept of natural death in different types of cancer, so I hope may be someday we can get a solution to this deadly problem 'cancer'. Though continuing research on my topic I hope to provide answers to the fundamental questions related to this topic.

Since a vast change has taken place in the modern scientific field, because of a number of advancements in the methodology and technology, a time has come to validate these ancient principles on modern parameters of research. As a matter of fact there is no need to establish the *Ayurvedic* basics once again on the modern methodology of scientific exploration, since these are in practice and in action since centuries. But to attract the modern generation to its fold, it is quite desirable to a certain extent to try out *Ayurveda* on modern methodology, which can only further strengthen the system in the long run.

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