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Research Article

IMPACT OF *AHARAJA* AND *VIHARAJA NIDAN* IN *PANDU* W.S.R. TO DIETARY AND LIFE STYLE FACTORS IN ANAEMIA

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ABSTRACT

Anaemia is an extremely prevalent condition common in all human of all ages, living in all condition and continents. It has got serious consequences for both the human health as well as the socioeconomic status of the country). Globally, 50% of anemia is attributable to iron deficiency and accounts for approximately 841,000 deaths annually worldwide. According to Ayurveda as well as in modern system of medicine has accepted that *Aharaja nidan* (diet & regimen) and *Viharaja* (lifestyle factors) are plays an important role in pathogenesis of *Pandu* (anaemia). The aim of the study was to identify those factors among the age group 10 to 60 years and to create the awareness to the community in the future. A cross sectional survey study was conducted in 120 patients of *Pandu* attending the OPD & IPD of Shyamadas Vaidya shastra pith hospital in Kolkata West Bengal, irrespective of their sex, religions & economic status through collecting data by questionnaires and they have been observed on dietary, physical, and psychological factors. The obtaining data revealed that especially female participants, rural as well as urban people, people from low & middle economic status were suffering from *Pandu* due to inadequate, improper intake of *Aharaja* & *Viraja nidan*. After evaluation of these factors, it can be concluded that, *Aharaja* & *Viharaja nidan* had been justified in the pathogenesis of *Pandu* which was depicted in different Ayurvedic compendium & about the scenario of *Nidan* in this particular population were suffering from *Pandu*.

KEYWORDS: *Aharaja nidan, Viharaja nidan, Pandu,* Anaemia.

INTRODUCTION

Anaemia is defined as a clinical condition characterized by reduction of haemoglobin concentration of blood below the normal according to the age, sex, physiological condition and altitude above sea level of that person[1]. The word *Pandu* denotes the development of *Pandu* (pale-yellow) *Haridra* (yellowish) & *Harita* (green) discoloration of the skin or relates to the loss of *Prakrita varna* of the body and relates to a symptom as well as diseases with the name of *Pandu*[2]. Clinically anaemia can be seen in lips, tongue, palate, nail beds and skin. According to Ayurveda *Ababhasini* layer resembles the outer most layer of skin and believed to reflect the health of healthy individual[3].

Anaemia is the most common nutritional disorder worldwide. Globally, 50% of anemia is attributable to iron deficiency and accounts for approximately 841,000 deaths annually worldwide. In India adolescence (10-19 yrs) group are more prone for anaemia. The essential prevalence of generalized *Pandu* (anaemia) in developing countries are 42% in women (15-59), 305 in male (15-59), 45% in adult (>60%). As per NFHS (National Family Health Survey) 3 survey (2005-2006), 70% of children are anemic and 3% are severe anemic[4].

Anaemia can be caused by the innumerable factors, the most common factors being deficiency of essential elements for the haemoglobin, blood loss (blood loss during menstrual cycle in female), repeated pregnancies in reproductive age, worm manifestation, haemolysis due to known and unknown causes, bone marrow condition causing suppression of red cell synthesis and the other causative factors are intake of improper nutritious diet, below poverty level, improper hand hygiene[5]. According to Ayurveda it is not restricted up to blood and blood forming haemopoetic system, it is caused due to the non-sequences of transformation of food into proper body components like *Rasa*, *Rakta* up to *Shukra*. *Pandu* is the diseases of *Rasavaha srotodusti*[6]. It mainly caused due to the *Dhatukshayaja* (reduction of *Dhatu*), *Grahani dosa* (impaired

digestive system) & *Krimiroga* (worm manifestation). *Pandu* is also a *Santarpnaja* & *Apatarpanaja vyadhi*. In the pathogenesis of *Pandu pitta* (*Pachak, Ranjak*, *Bhrajaka* & *Alochak*) & *Vata* (*Saman, Vyan*) are the main *Dosa* and *Twak, Rakta, Mamsa* & *Meda* are the *Dusyas*. This aggravation of *Pitta* brings about the diminution of the specific portion of *Rasa* responsible for the nourishment of *Rakta* as a result of which there is no production of nutrients factor to nourish the *Rakta* (haemoglobin fraction of blood). Similarly, *Tejas* is considered to be original source of both *Pitta* as well as complexion (*Varna*)[7]. Apart from the above said causative factors compendium also described the *Nidana* (causative factors) i.e., *Samanya nidan*-general and *Vishesa* (specific) *Nidan* for the development of *Pandu*. *Aharaja nidan* (dietetic factors), *Viharaja nidan* (improper daily regimen) & *Manasik nidana* (psychological factors) are included under these *Samanya* or *Vishesa nidan*. *Ativyayam* (excessive exercise), *Atilavan* & *Atiamla* (excessive use of salt and sour), *Ati madya* (daily intake of large amount of alcohol), *Ati divaswapna* (intake of excessive sleep in day times), *Atitikshna* (consumption of very spicy food), *Usnaati sevan* (excessive use of very hot substances), *Viruddha*, *vidagdha* & *Asatmya bhojan, Ritu vaisamya, Vegadharan, Pratikarma vaisamyat, Kama* (excessive desire of sex), *Krodh* (anger), *Chinta* (worrying in excess), *Bhaya* (fear), *Shoka* (grief) are the *Aharaja* and *Viharaja nidana*[8].

Therefore, this study was carried out with the following aims and objectives to study the significance of *Pandu* through studying *Aharaja* and *Viharaja nidana* & to evaluated the role of *Aharaja* and *Viharaja nidan* in the pathogenesis of *Pandu*.

MATERIAL AND METHODS

Selection of subjects

Patients were selected as known anaemia from the OPD &IPD of the institution of the post graduate Ayurvedic Education and Research at Shyamadas Vaidya Shastra Pith hospital, Kolkata, West Bengal, according to the haemoglobin level. The subjective criteria were assessed on those patients & objective criteria of haemoglobin, & serum ferritine have been assessed on those patients to establish the disease *Pandu*. Consent of each patient was taken. At the time of history taking *Aharaja* & *Viharaja nidana* were asked to the patients in details through questionnaires.

Sample size and sample design

A cross-sectional survey study was carried out after randomly selection followed by registration of 120 patients of *Pandu*. They were observed on basis of dietary, physical, and psychological factors.

Inclusion Criteria

Subjects of either sex between 10-60 years having decreased level of blood haemoglobin, and serum ferritine as objectives criteria and having the subjective criteria according to *Pandu* were selected for the study.

RESULTS AND OBSERVATIONS

Table 1: Shows the distribution of *Aharaja nidana* of 120 patients of *Pandu*

S.No.	Different *Aharaja Nidan*	No. of patients	Percentage (%)
1	*Ati amla sevan* (excessive intake of sour)	102	85.00
2	*Ati lavan sevan* (excessive intake of salt)	106	85.00
3	*Atiteekshna Ahara sevan* (excessive intake of spicy food)	80	66.66
4	*Ati madya seven* (excessive consumption of alcohol)	30	25.00
5	*Atiusna* (intake of excessive hot substances)	88	73.33
6	*Viruddha bhojana* (intake of incompatible food)	100	83.33
7	*Asatmya bhojan* (which is not suitable for individuals)	00	00.00
8	*Vidagdha bhojan* (intake of fried food)	56	46.66
9	*Mridbhakshan* (consumption of mud or pica)	04	03.33
10	Consumption of *Nispava*, *Masa* (types of legumes)	10	08.33
11	*Pinyaka* (Oil cake)	34	28.33

Graph 1: The distribution of *Aharaja nidana* of 120 patients of *Pandu*

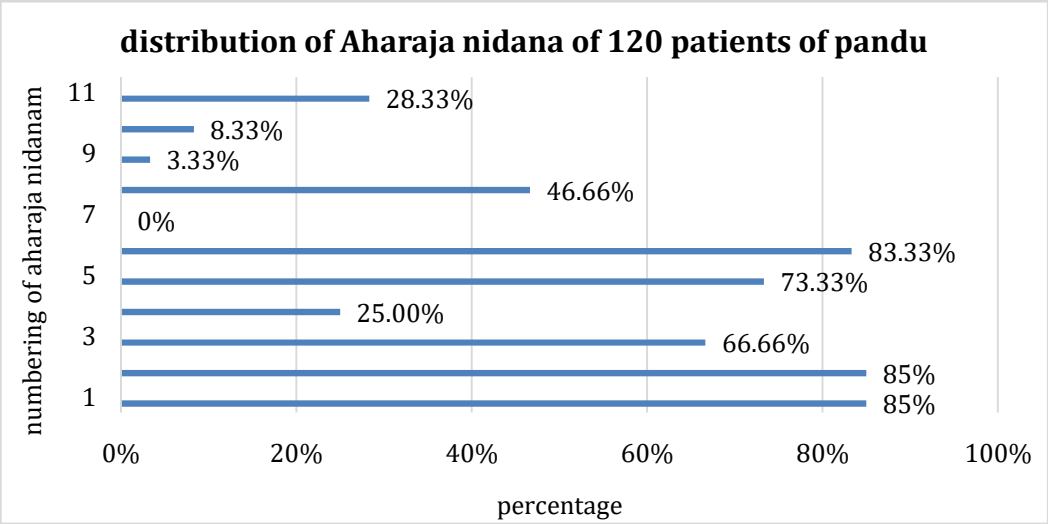


Table 2: The distribution of *Viharaja nidana* of 120 patients of *Pandu*

Sl no.	Different *Viharaja Nidan*	No. of patients	Percentage (%)
1	*Ativyayam* (excessive exercise)	58	48.00
2	*Ati vyavaya* (frequent sexual intercourse even before the food is not properly digested)	26	22.00
3	*Divaswapna* (sleeping during day time)	118	98.00
4	*Vega vidharanat* (suppression of natural urges-*Cchardi*)	16	13.00
5	*Ritu vaisamya* (transgression of prescribed seasonal regimens)	104	87.00
6	*Pratikarma* (improper administration of *Panchakarma*)	00	00

Graph 2: The distribution of *Viharaja nidana* of 120 patients of *Pandu*

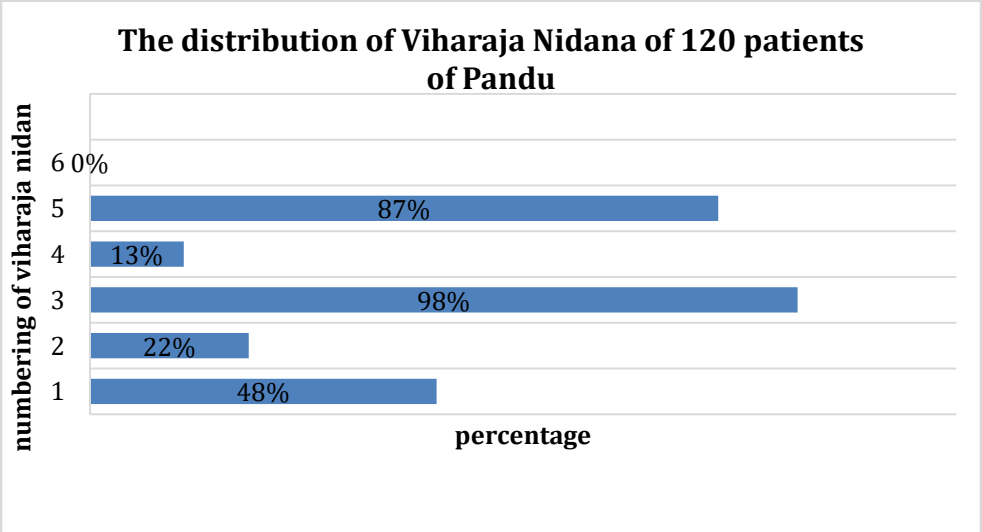
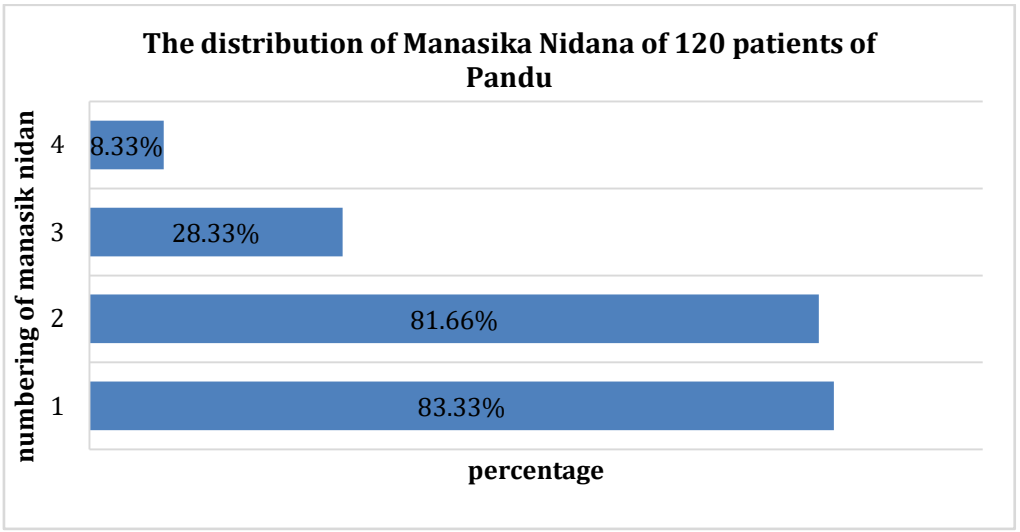


Table 3: The distribution of *Manasika nidana* of 120 patients of *Pandu*

Sl no.	Different *Manasik Nidan*	No. of patients	Percentage (%)
1	*Krodh* (anger)	100	83.33
2	*Chinta* (excessive thought)	98	81.66
3	*Bhaya* (fear)	34	28.33
4	*Shoka* (grief)	10	8.33

Graph 3: The distribution of *Manasika nidana* of 120 patients of *Pandu*



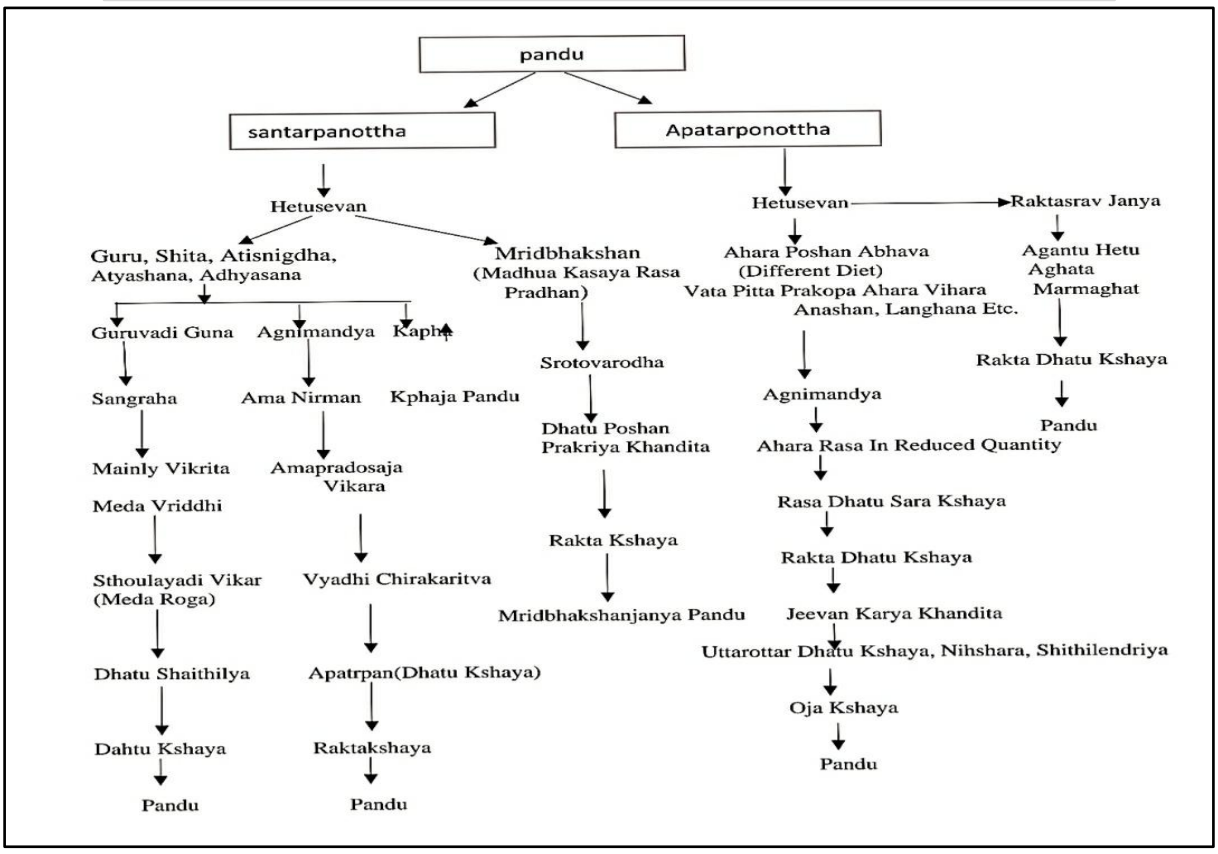


Figure no.1, *Samprapti* of *Pandu*

DISCUSSION

This study showed that the evidence of 85% value of two *Aharaja nidan* i.e., *Atiamla* & *Ati lavan sevanam* (excessive consumption of sour and salt content foods); next 83% were used to take *Viruddha bhojana* (incompatible food); next 73% and 66% were used to take *Ati usna* (excessive hot) and *Atitikshna ahara sevan* (repeated intake of spicy food). Among the 120 patients 46% had the habit of *Vidagdha* or fried food. In case of *Viharaja nidana* 98% of the patients having habits of *Divaswapna* (sleeping during day tie); 87% were not maintaining the dietic and lifestyle according to the *Ritu* (season); *Ativyayam* (excessive exercise) had done by 48% of the patients. Today each and every people has suffering from mental stress. Two psychological factors i.e., *Krodh* (anger) & *Chinta* (excessive thought) play most important role for the production of any disease. Here 83.33% and 81.66% patients having *Krodh* and *Chinta*. *Samprapti* of *Pandu roga* divided into two-way *Santarpanaja* & *Aptarpanaja Pandu*. According to *Acharya Charaka samprapti* (pathogenesis) of *Pandu* has been described in simplified manner through schematic diagram.

So, the above-mentioned data in table 1, table 2 & table 3 revels that the maximum number of patients had ingested *Aharaja, Viharaja* & *Manasik nidana* as described in Charak Samhita which favors the manifestation of *Pandu* & these can be interpreted as follows.

***Ati amla Sevan* (excessive intake of sour)** [9]

Amla ahara may be taken as foods with predominance of tomatoes, sour curd, lemons, citric acid, pickles & food with preservatives as jams, cold drinks, sauces, Imli etc. if it consumed excessive then aggravates the *Kapha* through dilatation (*Kapha vilapayati*), increase the *Pitta dosa*, vitiated Rakta (blood) etc. *Pitta & Rakta* are the most important factors for the production of *Pandu*. According to modern patients with iron deficiency anaemia whose bodies cannot absorb iron may benefited from adding foods rich in vitamin C to their diet. Vitamin C plays an important role in iron metabolism and application for red blood cell formation. Phytates and phytic acid (presents in wheat, legumes, nuts and brown rice etc.) can inhibit iron absorption by binding with the iron of digestive system.

***Ati lavan sevan* (excessive intake of salt)** [10]

Lavan ahararasa (excessive intake of salt taste) may be taken as food with excess salt or with salt added from above. According to compendium excessive intake of *Lavana rasa* vitiates the *Rakta dhatu* (blood cells). A high salt diet can contribute to high blood pressure, cardiovascular diseases, stomach cancer, kidney diseases, renal stones, obesity etc. We know that *Pandu* is categorized under the *Santaroanaja* & *Apatarpanaja vyadhi*. Consumption of salt also affects the sickle cell anaemia through hyponatremia or hypernatremia.

***Atiusna nidana sevan* (consumption of excessive hot substances)** [11]

Atiushna in terms of tea, coffee etc. are responsible for the increase of metabolic activity of the body, but it causes iron deficiency anaemia by interfering with absorption of iron. *Ati usna bhojan* also the cause of *Raktabahasrotadusti*.

***Ati madya sevan* (excessive intake of alcohol)** [12]

Alcohol can cause anaemia in a few different ways. Heavy drinking has been linked to a decrease in red blood cells which further leads to damage to heart, internal inflammation, and a lowered immune system. People who drink heavily are less likely to prioritized nutrition and may even skip meals entirely in favor of alcohol. This behavior can lead to sever nutritional deficiencies. A poor diet can cause iron deficiencies, folate deficiencies, and Vit B-12 deficiences that may all leads to anaemia. Consumption of alcohol also cause of megaloblastic anaemia by hampering the folate absorption.

Viruddha bhojana, Pinyaka, Nispava, Masha & Asatmya bhojan [13]

Consumption of *Viruddha ahara* in terms of incompatible diet, *Asatmya bhojana* -may be considered as sudden changes of food style or habit or also as junk food used to day as they are not beneficial, Pinyak -oil cake in terms of Panipuri, pakore, pithe, puli etc. & Nispva-legumes etc. may cause aggravation of *Pitta* along with the alteration of *Agni*, produced *Mandagni* by increasing *Kapha* which ultimately leads to abnormal *Dhatu paka* and become responsible for the *Dhatu kshayaja pandu*.

Vidagdha bhojana

Vidagdha ahara or *Khara paka ahara* in terms of food prepared through the grilling, broiling, roasting, searing & frying etc. such as grilled meat, fish etc. are also responsible for the *Pandu* through hampering the functions of Agni. According to modern food prepared through the grilling (260^0C), broiling (225^0C), roasting (177^0C), searing (150^0C), deep-frying (180^0C) & oven frying (230^0C) methods are the main source of AGEs (Advanced Glycation End products) formation which also known as Amodari products & these cooking process can generate carcinogenic chemicals. Products (AGEs) have been implicated in the oxidant-induced vascular pathology of diabetes and other diseases. Because homozygous sickle cell anaemia is a state of oxidative stress & due to this AGEs level are elevated in sickle cell anaemia[14]. The impaired biosynthesis of the beta-globin chain in beta thalassemia leads to the accumulation of unpaired alpha globin chains, failure to production of haemoglobin, and iron overload due to the frequent blood transfusion. Iron excess causes oxidative stress and massive tissue injuries. AGEs are harmful agents, and their production accelerate in oxidative condition, which may play an important role in the pathogenesis of beta-thalassemia major[15].

***Mridbhakshan* (consumption of mud/pica)**

It may be considered as either oral ingestion of mud or use of articles contaminated with mud as unclean hands and fingers or as improperly washed vegetables or eatables which may leads to worm manifestation. Through this worm manifestations (feco-oral rout), leads to nutritional deficiency or *Krimija pandu*.

A sever iron deficiency can cause people to crave or eat dirt or mud or pica. It is most commonly seen in pregnant women, small children, and persons with developmental disorders like autism. But relation between eating mud or pica & iron deficiency, with or without anaemia the reason is unclear.

Vyavaya -vyayamatiyoga

Physical exercise is good habit and it should be practiced everyday for the maintaining of proper health. But if a person undergoes excessive physical exercise, he become weak and lean & causes vitiation of *Vata dosa* which may lead alteration *Agni*[16]. Besides this excessive sexual indulgence causes *Dhatukshaya* which may lead to *Vataprakopa*[17].

***Divaswapna* (sleeping during day times)**

It can cause vitiation of *Kapha dosa* which leads to *Mandagni* and finally responsible for *Pandu*.

Vegdhranam-cchardi vega[18]

Rural life as well as urban life becomes faster now-a-days rather than few years back. Everyone is so busy and none of them has time to look after own health. *Cchardi vegdharan* may leads to *Pandu*.

***Manasik nidana* (*Shoka, Chinta, Bhaya & Krodh*)** [19]

Excessive affliction of *Shoka* (grief), *Chinta* (thought) & *Bhaya* (fear) can raise *Vata dosa*, alter all types of *Agni* mainly *Jatharagni* and which ultimately interrupt the process of *Avasthapaka* (digestion) & *Nisthapaka* (metabolism). By this way, production of *Ama* as well as defective in *Dhatus* along with their respective ojas take place. *Krodh* is anger and it responsible for elevation of *Pitta* which is the most important *Dosa* in *Pandu*.

***Ritu vaisamya* (transgression of prescribed seasonal regimens)**

Due to the to-days busy schedule or availability of everything one cannot maintained the proper dietetics and life style according to season which may lead to *Pandu* through the aggravation of *Pitta* and vitiation of *Rasa*, *Rakta, Mamsa & Meda* but this not have been confirmed till now through modern scientific studies.

Pandu is a *Santarpanja vyadhi*[20]. According to modern over nutrition may cause of anaemia. Obesity involves impaired duodenal iron absorption associated with low expression of duodenal ferroprotein (FPN) along with elevated hepcidin concentration, causes decreased serum iron. The low iron status in over weight individual results combination of nutritional (reduced absorption) and functional (increased sequestration) iron deficiency.

CONCLUSION

This study reveals that *Pitta* (*Pachak, Ranjak*, *Bhrajaka* & *Alochak*) & *Vata* (*Saman, Vyan*) are the main *Dosha* and *Twak, Rakta, Mamsa & Meda* are the *Dushyas* of *Pandu*. The *Aharaja & Viharaja nidan* plays a prime role in the vitiation of them. These *Nidan* vitiate the *Kapha, Rasa, Rakta, Mamsa* & *Meda* through the alteration of *Agni*, which leads to the vitiation of *Grahani*, nutritional deficiency or *Dhatukshaya* and ultimate fate is *Pandu*. This observational study is found as very much significant through studying *Aharaja & Viharaja nidan*. Modern sciences also reveal that dietary habits & lifestyle factors (sedentary lifestyle) are primarily cause of nutritional deficiency. Therefore, early diagnosis and timely intervention with proper management along with *Nidana parivarjana* are highly essential to prevent *Pandu*. After evaluation of these factors, it can be concluded that, *Aharaja* & *Viharaja nidan* had been justified in the pathogenesis of *Pandu* which was depicted in different Ayurvedic compendium & about the scenario of *Nidan* in this particular population were suffering from *Pandu*.

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