CONCEPT OF PACHAKA PITTA IN PANDU ROGA AND ITS MANAGEMENT BY NAVAYASA CHOORNA

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ABSTRACT
Humans are the most intelligent and ambitious living beings on the earth. Because of this, humans are progressively achieving the endless heights in science and technology. The day-to-day advancement in every aspect of living has made the life very fast, hectic and full of stress. In such an outfit, in order to adjust themselves every person is compelled to make his life fast and mechanical. All these factors contribute and in turn lead to create very common and well known disease Anaemia and specifically iron deficiency anaemia (IDA) and in Ayurveda iron deficiency anaemia can be correlated with the Panduroga. This study includes Clinical study on management of pandu roga by navayasa choorna on the basis of Gandha Guna Samanya. The modern management of anaemia is mainly oral and parental therapy for correcting iron deficiency. This in spite of many advantages still remains unsatisfactory. Oral therapy can cause nausea, abdominal discomfort, diarrhea, and constipation are the side effects and it almost turns stool in to black, which is harmless side effect. The adverse effect of parental therapy includes hypersensitive reactions, haemolysis, hypotension, circulatory collapse, and vomiting and muscle pain. Blood transfusion, which is said as emergency treatment, can raise Hb up to 1gm with a single unit. Thus it is important to search a safer, cost effective therapy, which could be explored from the navayasa choorna. After considering the above facts navayasa choorna and its effect on pandu roga has been selected for research work.
Key words: Pandu roga, navayasa choorna, Anaemia.

1. INTRODUCTION

Pandu roga is a pitta pradana vyadhi in which rasa dhatu and rakta dhatu are mainly affected. Based on samprapti of pandu roga, these dhatus are not going to nourish due to excess intake of pitta prakopaka ahara, viarahara. The vitiated doshas assumes sthanasamshraya in between twak and mamsa resulting in pandu, harita, and haridra varna to the skin. Hence, the disease is named as pandu roga. It has five types Vataj, Pittaj, Kaphaj, Sanipataj and Mridikabhakshanjaya pandu which has the symptoms like Dourbalya, Vaivarnya, Pindikodweshtana, Aruchi, Arohanayasa and Jwara etc. Among the three doshas Vata, Pitta, Kapha; pitta dosha is responsible for the conversion of food into heat, tissues and, waste materials. It governs digestion and metabolism from the cellular level to the tissue level, to that of the body as a whole. If we observe the specific functions mentioned to the types of pitta; the digestion and metabolism of the food, is refers to the sub type of pitta that is Pachaka pitta. In the samhitas, Acharyas gave various synonyms to the pachaka pitta in the context of Digestion and Metabolism; are Pachakagni, Kostagni, Kayagni, Jataragni etc. In this study the patient having lakshanas of panduroga were administered with navayasa choorna with the anupanas as madhu and gritha. The drug fulfills the qualities like Bahu kalpam, Bahu gunam, Sampannam, Yogyam, Yuktmatra, Doshaghanam, Sukha Aswadana, Preenanam, Vyadhinashanam, Avikara karam, Avipath karam Gandha varna rasopetam. Hence the drug is selected for the clinical study. The concept Gandha Guna Samanya it explains how the drug is going to act on pandu roga on the basis on gandha guna. Generic concomitance is always the cause of the augmentation. Particularly guna samanya is not an exception to cause increase. Rakta dhatu and lohita kitta have got one similarity i.e. Gandha guna. They both smell alike each other. Based on this, navayasa choorna is selected and used therapeutically in pandu roga.

2. MATERIALS & METHODS

Step 1: preparation of navayasa choorna

Materials
Shunthi (Zinzibar officinale), Maricha (Piper nigrum), Pippali (Piper longam), Haritaki (Terminali chebula), Amalaki (Phyllanthus emblica), Bibhitaki (Terminalia bellerica), Vidang (Embelia ribes), Chitraka (Plumbago zeylanica), Musta (Cyperus rotundus) each-1 Part and Lauhhasmasa -9 Part.
METHOD
All drugs except Lauhabhasma was crushed into fine powder and then mixed with lauhabhasma and form the Vati. The formulation was prepared and supplied from IMPCOPS co-operative pharmacy, Chennai, in the form of Vati, each weighing 500mg.

Step 2: Clinical study on management of pandu roga by navayasa choorna
30 patients of pandu disease are randomly selected in the OPD and IPD of Ayurveda Siddhanta, S.V Ayurvedic College Hospital, Tirupati for this study. The patients were advised to use 2 gm. per day in two divided doses i.e. 2 tablets twice a day with ghrita and madhu as anupana. The condition of the patients are reviewed after every 15 days of treatment and continued up to duration of two months and the observations were recorded.

A. Inclusion Criteria
The patients of both sexes between the ages of 16 to 65 years with mild to moderate anaemia, Patients having lakshanams of pandu (specifically IDA) and Patients other than exclusive criteria are included in the present study.

B. Exclusion Criteria
Pregnant women systemic metabolic disorders Sickle cell anaemia, Thalassemia and Pernicious anaemia and Anaemia associated with any malignancy.

C. Parameters of the study
Subjective parameters
Panduta, Daurbalya, Hritspandana, Arohanayasa, Pindikodweshtana, Karnakshweda, Bhrama, Akshikuta shotha, Rukshatha, Aruchi, Jwara.

Objective parameters
Hb%, T.L.C., D.L.C., E.S.R., Stool examination (If necessary), Urine examination (If necessary)

D. Method of observation
The progress of the patients is observed and recorded accordingly after every 15 days. This process is followed for duration of 60 days. After the completion of the duration, the results are assessed based on the observations.

E. Criteria for assessment of patients
Hb level below 10 gm % was kept as main diagnostic criteria for the selection of patients. Other necessary investigations were carried out to exclude other pathologies as well as for
the assessment of present health status of patients.

A. GRADING SCALE

**Panduta (In - Twaka, Nakha, Netravartma, Jihva, Hastapadatala):** Absent- 0, In any 2 of these- 1, In any 3 of these- 2, In any 4 of these- 3 and In all- 4. **Daurbalyata:** Not Present- 0, After heavy work relieved soon- 1, After Moderate work relieved later- 2, After little work relieved later- 3 and After little work relieved later but beyond tolerate- 4. **Hridspandana:** Not Present- 0, After heavy work, relieved soon & tolerate- 1, After Moderate work relieved later & tolerate- 2, After little work relieved later- 3 and After little work relieved later but beyond tolerate- 4. **Bhrama:** Not Present- 0, After heavy work, relieved soon & tolerate- 1, After Moderate work relieved later & tolerate- 2, After little work relieved later- 3, After little work relieved later but beyond tolerate- 4 and Bhrama even in resting condition- 5. **Shunkshikuta shotha:** Absent- 0, Mild- 1, Moderate- 2 and Severe- 3. **Rukshata (In - Twaka, Nakha, Netravartma, Jihva, Hastapadatala):** Absent- 0, In any 2 of these- 1, In any 3 of these- 2, In any 4 of these- 3 and In all- 4. **Swasha:** Not Present- 0, After heavy work, relieved soon & tolerate- 1, After Moderate work relieved later & tolerate- 2, After little work relieved later- 3, After little work relieved later but beyond tolerate- 4 and Swasha even in resting condition- 5. **Aruchi:** Normal instinct of taking food- 0, Person even dislikes the touch or smell of food- 1, Though the person is hungry he had dislike for food, Due to fear, anger etc- 2 and Person doesn’t like to take food due to Sharira/Manas doshas- 3. **Pindikodweshtanam:** Absent- 0, After heavy work- 1, After moderate work- 2, Only at night but beyond tolerate- 3, Whole day, severe and require medicine- 4. **Jwara:** Absent- 0, Occasional- 1, Daily once- 2 and Constant- 3. **Karnakshweda:** Absent- 0, Occasional & Tolerable- 1, Occasional & Non Tolerable- 2 and Constant & Non Tolerable- 3.

B. Improvement Scale

After completion of the treatment the results are assessed in terms of Pravara, Madhyama and Avara. The Criteria adopted for the gradation of Lakshanas is shown by the sign ‘+’, and absence of Lakshanas is shown by the sign ‘-’. The criteria adopted for this study as given below: **Pravara:** The result is concluded as Pravara when, All the signs and symptoms present before starting the treatment are relieved with no side effects. Increase hemoglobin levels in between 12 and 14 grams. Increase RBC count in between 4.5 and 6 million cells/cu.mm. **Madhyama:** The result is concluded as Madhyama when, most of the signs and symptoms present before starting the treatment are relieved except one or two. Increase
hemoglobin levels in between 10 and 12 grams. Increase RBC count in between 3.5 and 4.5 million cells/cu.mm. **Avara:** The result is concluded as Avara when, There is only few signs and symptoms are relieved. Increase of hemoglobin levels is less than 10 grams. RBCs count less than 3.5 million cells/cu.mm.

**II. Statistical analysis**

The obtained information was analyzed statistically in terms of mean score (x), Standard Deviation(S.D.),Standard Error (S.E.) Paired t test was carried out at the level of 0.05, 0.01, 0.001 of p levels. The results were interpreted as, P<0.05 improvement, P<0.01 Significant improvement, P<0.001 highly significant improvement.

**3. RESULTS**

A. The subjective parameters namely Panduta, duarbalya, hritspandana, bhrama, akshikuta shotta, rukshata, swasa, aruchi, pindikodweshtana, jwara and karnaksheda are showing improvements at the level of P<0.001 with the improvement percentages as Panduta (66.67%), duarbalya (83.82%), hritspandana (45.65%), bhrama (33.3%), akshikuta shotta (42.30%), rukshata (37.5%), swasa (90.5%), aruchi (65.152%), pindikodweshtana (36.11%), jwara (21.62%) and karnaksheda (41.66%).

B. The objective parameters at 15 days Hb%, and RBC are showing improvements at the level of P<0.001 with the improvement percentages as Hb% (14.84%), RBC (14.71%).

C. The objective parameters at 30 days Hb%, and RBC are showing improvements at the level of P<0.001 with the improvement percentages as Hb% (28.6%), RBC (25.81%).

D. The objective parameters at 45 days Hb%, and RBC are showing improvements at the level of P<0.001 with the improvement percentages as Hb% (39.74%), RBC (36.81%).

E. The objective parameters 60 days Hb%, and RBC are showing improvements at the level of P<0.001 with the improvement percentages as Hb% (51.51%), RBC (50.28%).

F. Based on above observations, the table no.6 shows that 19 patients (63.3%) were Pravara category, 8 patients were Madhyama category and 3 patients were Avara category.
Table 1: Statistical analysis of Subjective parameters

<table>
<thead>
<tr>
<th>SR.</th>
<th>Subjective Parameters</th>
<th>Mean B T</th>
<th>Mean A T</th>
<th>% Of Imp’n’t</th>
<th>S D</th>
<th>SEM</th>
<th>T Value</th>
<th>P Value</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Panduta</td>
<td>2.8</td>
<td>0.93</td>
<td>66.67</td>
<td>0.6</td>
<td>0.11</td>
<td>16.26</td>
<td>&lt;0.001</td>
<td>S</td>
</tr>
<tr>
<td>2</td>
<td>Daurbalya</td>
<td>2.26</td>
<td>0.36</td>
<td>83.824</td>
<td>0.66</td>
<td>0.12</td>
<td>15.7</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
<tr>
<td>3</td>
<td>Hritspandana</td>
<td>1.53</td>
<td>0.83</td>
<td>45.65</td>
<td>0.65</td>
<td>0.11</td>
<td>5.88</td>
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<td>HS</td>
</tr>
<tr>
<td>4</td>
<td>Bhrama</td>
<td>0.2</td>
<td>0.13</td>
<td>33.3</td>
<td>0.25</td>
<td>0.04</td>
<td>1.43</td>
<td>&lt;0.1</td>
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</tr>
<tr>
<td>5</td>
<td>Akshikutashotha</td>
<td>1.73</td>
<td>1</td>
<td>42.30</td>
<td>0.73</td>
<td>0.13</td>
<td>5.43</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
<tr>
<td>6</td>
<td>Bakshatwa</td>
<td>1.6</td>
<td>1</td>
<td>37.5</td>
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<td>0.09</td>
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</tr>
<tr>
<td>7</td>
<td>Arohanayasa</td>
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<td>0.2</td>
<td>90.09</td>
<td>1.14</td>
<td>0.20</td>
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<td>&lt;0.001</td>
<td>HS</td>
</tr>
<tr>
<td>8</td>
<td>Aruchi</td>
<td>2.2</td>
<td>0.7</td>
<td>65.152</td>
<td>1.00</td>
<td>0.18</td>
<td>7.8</td>
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<td>HS</td>
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<tr>
<td>9</td>
<td>Pindikodweshtana</td>
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<td>10</td>
<td>Jwara</td>
<td>1.23</td>
<td>0.96</td>
<td>21.62</td>
<td>0.4</td>
<td>0.08</td>
<td>2.4</td>
<td>0.05</td>
<td>NS</td>
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Table 2: Statistical analysis of objective parameters at 15 days

<table>
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<tr>
<th>SR.</th>
<th>Objective Parameters</th>
<th>Mean B T</th>
<th>Mean A T</th>
<th>% of Imp’n’t</th>
<th>S D</th>
<th>SEM</th>
<th>T Value</th>
<th>P Value</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hb</td>
<td>7.9</td>
<td>9.1</td>
<td>14.84</td>
<td>0.77</td>
<td>0.14</td>
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<td>HS</td>
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<tr>
<td>2</td>
<td>RBC</td>
<td>2.95</td>
<td>3.40</td>
<td>14.71</td>
<td>0.37</td>
<td>0.06</td>
<td>6.2</td>
<td>&lt;0.001</td>
<td>HS</td>
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</table>

Table 3: Statistical analysis of objective parameters at 30 days

<table>
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<tr>
<th>SR.</th>
<th>Objective Parameters</th>
<th>Mean B T</th>
<th>Mean A T</th>
<th>% of Imp’n’t</th>
<th>S D</th>
<th>SEM</th>
<th>T Value</th>
<th>P Value</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hb</td>
<td>7.9</td>
<td>10.93</td>
<td>28.6</td>
<td>0.90</td>
<td>0.18</td>
<td>12.5</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
<tr>
<td>2</td>
<td>RBC</td>
<td>2.95</td>
<td>3.73</td>
<td>25.81</td>
<td>0.46</td>
<td>0.08</td>
<td>8.7</td>
<td>&lt;0.001</td>
<td>HS</td>
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</table>

Table 4: Statistical analysis of objective parameters at 45 days

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<th>Mean A T</th>
<th>% of Imp’n’t</th>
<th>S D</th>
<th>SEM</th>
<th>T Value</th>
<th>P Value</th>
<th>Remark</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Hb</td>
<td>7.9</td>
<td>11.07</td>
<td>37.94</td>
<td>1.29</td>
<td>0.23</td>
<td>13.31</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
<tr>
<td>2</td>
<td>RBC</td>
<td>2.95</td>
<td>4.06</td>
<td>36.81</td>
<td>0.56</td>
<td>0.10</td>
<td>10.4</td>
<td>&lt;0.001</td>
<td>HS</td>
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</table>

Table 5: Statistical analysis of objective parameters at 60 days

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<th>Objective Parameters</th>
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<th>Mean A T</th>
<th>% of Imp’n’t</th>
<th>S D</th>
<th>SEM</th>
<th>T Value</th>
<th>P Value</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hb</td>
<td>7.9</td>
<td>12.01</td>
<td>51.51</td>
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<tr>
<td>2</td>
<td>RBC</td>
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<td>4.47</td>
<td>50.28</td>
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<td>0.13</td>
<td>11.10</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
</tbody>
</table>

Table 6: Final Result

<table>
<thead>
<tr>
<th>Results</th>
<th>No. of males</th>
<th>No. of females</th>
<th>Total</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pravara</td>
<td>06</td>
<td>13</td>
<td>19</td>
<td>63.3</td>
</tr>
<tr>
<td>Madhyama</td>
<td>01</td>
<td>07</td>
<td>08</td>
<td>26.7</td>
</tr>
<tr>
<td>Avara</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>10.0</td>
</tr>
</tbody>
</table>
4. DISCUSSION

A. Effect of treatment on different symptoms of the disease

**Panduta:** The most important presenting sign of *Pandu roga* is where lustre of the skin is lost. This sign is the most conclusive sign of the disease because whenever the patient comes across, the thing first observed is the appearance. *Varna* and *Prabha* are the properties of *Raktadhatu* and *Pitta dosha*, particularly the Bhrajaka and Ranjaka *Pitta*. It also occurs more and more in *Ojakshaya*, *Raktakshaya* and *Pitta prakopa*. In the present study it was observed that 100% of patients complain of *Panduta*, Statistically highly significant i.e. p value <0.001 showed for this parameter. **Dourbalya:** This is second most important symptom of the disease
Pandu. It was present maximum number of patients in i.e. 100%. The reason for this may be causes the debility to Dhatukshaya, Ojakshaya as well as Raktalpata which causes the debility to do anything or in other words Daurbalya. If we consider it from Modern point of view the cells in the Blood are responsible for supplying oxygen to body tissues. The oxygen is very necessary for the normal metabolic activities. When there is condition is decrease in number of RBCs, metabolic activities hastened and if this condition persists for a long period, debility appears. Regarding the effect of therapy, result was highly significant i.e. p<0.001. 

Hritisppandana: Hritisppandana was found in 10 patients so it can be taken as one symptom of pandu. It is due to less oxygen carrying capacity of blood to various organs, body tissues and especially heart, so heart has to pump quickly to provide rapid blood flow to the body organs. Patients were found relief in this symptom up to 45%, result was highly significant i.e p<0.001. Bhrama: Bhrama was found in 10 patient’s shows that it is also common presenting symptom. Bhrama occurs due to rajogunadhikya and vikrithi of vata and pitta. In pandu roga rasa, rakta dhatu kshaya may cause the vata pitta vridhhi ultimately shows the symptom Bhrama. After the treatment it was reduced up to 33.3% but not at significant level. Results shows that not significant i.e. p<0.1 in this parameter. Akshikuta shotha: About 33 % of cases had this symptom. It occurs due to lack of blood and Amotpatti due to mandagni. Some relief was observed up to 42% respectively which were statistically significant. In drug, maximum contents are having Dipana, Pachana property which decrease Ama and give good result. Rukkshata: This symptom was found in 50 % patients. It is denoted by vitiation of vata and kapha dosha. Due to lack of blood and fat body of the anaemic patients becomes weak and ruksha which provokes vayu. Hence due to contradictory desire i.e. vipritagunechana, the symptom occurs. Maximum relief was observed up to 90 % which was statistically significant (p<0.01). Arohanayasa: Tiredness after minimal work followed by mild difficulty in breathing is seen in Anaemia. This feature is explained in Ayurveda as Arohanayasa. It is due to less oxygen carrying capacity of blood to the vital organs. So heart has to pump more to provide proper blood flow. In the present study it was observed that 80% of patients complain of Arohanayasa. After the treatment it was reduced significantly. Results shows that very significant i.e. p<0.001 in this parameter. Aruchi: Aruchi means aversion to food, which is mainly seen in Pandurogi. Agnimandya and Ajeerna always lead to Aruchi. Thus patients of Pandu will complain of loss of Appetite and less intake of food which are co-existence of Aruchi. In this study 20% patients were having Aruchi. Result showed that the therapy was highly significant. This may be because of Deepana, Pachana, properties of Trikatu, Chitraka. Pindikodwestana: Pindikodewshtana or Leg cramps was noted next. It
may be due to some change in Muscular tissue metabolism or due to Weakness. Another reason is again vitiated Vata due to Dhatukshaya. If the vitiated vata situated in muscles of jangha pindikodwestana may occurs. Leg cramps was noted in maximum patients 15(50%).

Results showed that the effect of drug in this symptom is highly significant. Jwara: Incidence of jwara may also be probably due to rasa dhatu dushti found in pandu rogi. This symptom was found in 12 patients and the relief was noted as 21.06% and the effect of therapy noted as not significant. Karnakshweda: It also occurs due to provoked vata dosha and pitta dosha due to dhatu kshaya. It may be also due to some change in muscular tissue metabolism. It was found in 10 % of patients. Regarding the effect of therapy, 41.6% relief was found results were not significant in cases.

B. Effect of treatment on objective parameter
In the present study all the cases were examined for Hb gm% before treatment and after the treatment. After treatment, trial drug was found to be effective in increasing the Hb gms %, and statistically analysis was carried out, effect of drug was highly significant for this investigation.

5. CONCLUSION
The conclusions drawn from the present study are listed here under: The pachakapitta is produced from the pittadharakala by the stimulation of samanavata, pittadharakala is also known as grahani and located in the interior of amasaya and pakvasaya. The pachakapitta is responsible for the digestion of the food in annavaha srotas. There is adharadheyabhava asrayasrayeebhava between the pachakapitta and pittadharakala grahani. The impairment of pachakapitta disturbs the integrity of the grahani and vice versa. The health of an individual is dependent on the proper functioning of the pachakapitta. Pandu is a Tridoshaja vyadhi with the main culprit dosha pitta. Pitta is responsible for the normal colour of the body and causes vitiation of Rakta leads to loss of complexion or panduta occurs. In the present study maximum number of patients showed this lakshana. Pandu roga was found to be more prevalent in the age group of 36- 45 years and women are more prone to this disease. The symptoms of pandu are very close related to Iron Deficiency anaemia. Pandu roga was found to be more in poor and middle class of people, and in Hindu community. Pandu roga was found to be more in mandaagni people. Panduta, Agnimandhya, Shrama, Arohanasya and Dourblya etc. were taken as subjective parameters and blood routine was taken as objective parameter. Panduta, Shrama, Dourblya and Agnimandya etc, were found as most common
presenting complaints of the patients. The trial drug navayasa choorna showed highly significant result in both subjective and objective parameters. Navayasa choorna reduces the pandu roga on the basis of Gandha guna samanya.

6. REFERENCES