INTRODUCTION: A complete blood analysis is frequently used to evaluate the presence of infection or inflammation. Various studies have elucidated that periodontal infections affect hematological parameters such as the differential counts of white blood cells, red blood cells, and/or platelets. The aim of present study was to access hematological findings in aggressive periodontitis and generalised chronic periodontitis and to compare their parameters with periodontally healthy control from the native population.

MATERIALS AND METHOD

<table>
<thead>
<tr>
<th>GROUP</th>
<th>SAMPLE SIZE</th>
<th>AGE RANGE &amp; MEAN AGE</th>
<th>INCLUSION CRITERIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>I AGGRESSIVE PERIODONTITIS</td>
<td>8</td>
<td>20-30, mean age 25.5 years</td>
<td>CAL &gt; 3 mm in incisors and molars (localised), Deep pockets, Advanced bone loss, Positive family history</td>
</tr>
<tr>
<td>II CHRONIC GENERALISED PERIODONTITIS</td>
<td>15</td>
<td>35 – 45, mean age 38.9 years</td>
<td>Generalised bone loss</td>
</tr>
<tr>
<td>III CONTROL</td>
<td>15</td>
<td>20 – 45, mean age 35.4 years</td>
<td>Patients with good periodontal health who came for other dental procedures.</td>
</tr>
</tbody>
</table>

*Exclusion criteria – Patient with systemic disease, pregnancy, smoking or any history of antibiotic therapy in last three months were excluded from the study.

Well-informed consent was taken from the patients prior to blood sample collection. A sample of 2 ml venous blood was obtained by venipuncture in antecubital fossa, and it was kept in an EDTA-coated vacutainer. The blood sample was analysed in a Fully Auto Hematology Analyzer (PE 6000 PROKAN). Erythrocyte parameters (values of white blood cells, red blood cells, hemoglobin, mean corpuscular volume, mean corpuscular hemoglobin, mean corpuscular hemoglobin concentration, red-cell distribution width, platelet count, and mean platelet volume) were recorded. Probing depths and clinical attachment levels were also observed clinically.

RESULTS

Comprehensive analysis of data indicates that aggressive periodontitis patients:
- MCV was significantly lowered (Independent Sample T Test, p value 0.027)
- Lower hemoglobin levels
- Lower RBC counts as compared to generalised chronic periodontitis and periodontally healthy control group.

Positive correlation (Independent Sample T Test, p value 0.032) between increased values of mean RDW – CV in aggressive periodontitis in comparison to the control group. This parameter was also observed in one study (Anand PS et al) but the difference
- No significant difference was observed between the mean values of MCH and MCHC among the three groups (one-way ANOVA).
- The mean values of the WBC counts, neutrophils, lymphocytes, and eosinophils were almost constant.
- Monocytes were significantly lowered (Kruskall-Wallis Test, p value 0.020)
- The data comprise more females among cases and controls, so the gender difference was not considerable.

DISCUSSION

Aggressive Periodontitis Findings

In Conformance
- Reduced hemoglobin level
  - Anand PS et al
  - Lopez R et al
- Mean total and differential leucocyte count indistinguishable between cases and controls
  - Lopez R et al
  - Dosumu EB et al
- MCH and MCHC were not different among the three groups
  - Anand PS et al
  - Lopez R et al
- Mean value of MCV was lowered
  - Anand PS et al
  - Lopez R et al
- Monocytes were significantly lowered
  - Independent Sample T Test, p value 0.027

In Against
- MCH and MCHC were not different among the three groups
  - Anand PS et al
  - Lopez R et al

Considerable increased values of RDW – CV was observed in aggressive periodontitis patients in contrast to the control group. This difference reflects the increased degree of variation in the size of erythrocytes (anisocytosis). RDW is appreciably increased in iron deficiency, folic acid or vit B12 deficiency anemia. Various studies have shown that higher values of RDW are associated with aging, poor nutritional status, cardiovascular disease, and diabetes. Aggressive periodontitis generally effects systemically healthy individual, but the increase in the value of RDW-CV suggests the systemic effects of disease.

CONCLUSION

In the present pilot study, lower hemoglobin levels and low erythrocyte counts reflect the systemic effects of periodontal condition. More studies on large scale need to be done in order to find the association of RDW with aggressive periodontitis patients. Like other systemic disease, can RDW be a parameter for advanced bone loss?? Research must go on!!

REFERENCES:
- Davenport RE, Rupe J, Gentry D: Alterations in the hematologic values in juvenile periodontitis patients. J Periodontol 2003, 84, pp. 177-181