A CLINICO-HEMATOLOGICAL APPRAISAL OF AGGRESSIVE AND GENERALISED CHRONIC PERIODONTITIS

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

**GROUP** | **SAMPLE SIZE** | **AGE RANGE & MEAN AGE** | **INCLUSION CRITERIA**
---|---|---|---
I AGGRESSIVE PERIODONTITIS | 8 | 20-30 , mean age 25.5 years | CAL > 3mm in incisors and molars (localised), Deep pockets, Positive family history
II CHRONIC GENERALISED PERIODONTITIS | 15 | 35 – 45, mean age 38.9 years | Generalised bone loss
III CONTROL | 15 | 20 – 40, mean age 35.4 years | Patients with good periodontal health who came for other dental procedures.

TOTAL | 38 |

**RESULTS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>MEAN ± SD</th>
<th>AGENSSIVE PERIODONTITIS</th>
<th>GENERALISED CHRONIC PERIODONTITIS</th>
<th>CONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WBC</strong></td>
<td></td>
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<tr>
<td>Neutrophils</td>
<td>7.54 ± 2.83</td>
<td>7.56 ± 1.63</td>
<td>8.42 ± 2.47</td>
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<tr>
<td>Eosinophils</td>
<td>0.04 ± 0.30</td>
<td>0.09 ± 0.05</td>
<td>0.03 ± 0.06</td>
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<tr>
<td>Monocytes</td>
<td>3.12 ± 0.47</td>
<td>3.23 ± 0.82</td>
<td>3.27 ± 0.66</td>
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<tr>
<td><strong>RBC</strong></td>
<td></td>
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<tr>
<td>Hb</td>
<td>10.96 ± 1.44</td>
<td>12.39 ± 1.36</td>
<td>12.25 ± 1.86</td>
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<tr>
<td>MCH</td>
<td>25.71 ± 2.40</td>
<td>28.07 ± 2.73</td>
<td>29.40 ± 2.43</td>
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<tr>
<td>MCHC</td>
<td>32.72 ± 1.09</td>
<td>32.60 ± 2.45</td>
<td>32.09 ± 2.94</td>
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<tr>
<td>MCV</td>
<td>82.20 ± 4.65</td>
<td>85.83 ± 6.76</td>
<td>89.76 ± 7.72</td>
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<tr>
<td><strong>RDW-CV</strong></td>
<td>15.18 ± 1.51</td>
<td>14.04 ± 1.27</td>
<td>13.88 ± 1.10</td>
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<tr>
<td><strong>Platelet Count</strong></td>
<td>284.2 ± 92.4</td>
<td>128.50 ± 17.18</td>
<td>267.5 ± 108.3</td>
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</tr>
<tr>
<td><strong>Mean Platelet Volume</strong></td>
<td>9.04 ± 1.10</td>
<td>9.40 ± 1.09</td>
<td>9.45 ± 0.90</td>
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</tbody>
</table>

Positive correlation (**Independent Sample T Test, p value 0.023**) 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 was not significant.

**DISCUSSION**

**Aggressive Periodontitis Findings In Concordance In Against**
- Reduced hemoglobin level
- Anand PS et al
- Lopez R et al
- Mean total and differential leukocyte count indistinguishable between cases and controls
- Lopez R et al
- Dosumu EB et al
- MCH and MCHC were not different among the three groups
- Kutner JW
- Anand PS et al
- Lopez R et al
- Mean value of MCV was lowered
- Anand PS et al
- Lopez R et al

**Generalised Periodontitis Findings In Concordance In Against**
- Reduced platelets
- Anand PS et al
- Lopez R et al
- Increased mean corpuscular volume
- Anand PS et al
- Lopez R et al
- Platelet counts
- Anand PS et al
- Lopez R et al
- Increased mean corpuscular volume
- Anand PS et al
- Lopez R et al

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

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 systematically healthy individual, but the increase in the value of RDW-CV suggests the systemic effects of disease.

**CONCLUSION:** In the present pilot study, lower hematocrit 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: