The Relation Ship between Psoriasis and Some Bio Chemical Studies (Alkaline Phosphates, Immunoglobulin and trace elements)

Abstract

This study was done on (81) person male and female divided into 55 patients with Psoriasis and 26 healthy person. The samples are taken from Al – Hussain hospital, Al – Hindia hospital and some private clinic of dermatological specialist in duration of 3 months.

Age and sex had no value here, because of disease attack all ages and male female ratio are equal and the disease depend on Immunity of skin not to age or sex our study research some biochemical studies like levels of AIP, IgG, IgA, IgM and serum level of Zn and Cu, In healthy and Psoriatic patients. The results of this study founded ↓ level in IgG, Cu and ↑ level in sera of AIP and Zn, all results explained to relation this between the disease and immunological excitation of skin.

Introduction

Psoriasis is achronic non – infectious inflammatory skin disorder, characterized by well – defined erythematos plaques bearing large adherent silvery scales. It can start at any age but is rare under 10 years. The precise cause of Psoriasis is still unknown. However, there is often agentic predisposition, and some times an obvious environmental trigger. The genetic abnormality is first to kraitocyte hyper proliferation that, in turn produces adective skin barrier allowing the penetration by un masking of hidden antigens to which an immune response is mounted. In a pervious study it was demonstrated that pathological skin synthesized immuno globuline (Ig) in different patterns, whereas in normal skin no synthesis was found serum Ig levels in patients with psoriasis have been determined quantitatively with the single radial immunodiffusion technique. Many studies report an association between hepatitis C and psoriasis. In a large study of psoriasis in monozygotic twins, heritability was high and environmental influence low. Patients with psoriasis often have relative with the disease and the incidence typically increases in successive generations. Multifunctional inheritance is likely. Many studies raised the question of wether the local synthesis of immunoglobulins demonstrated in the lesional skin of parients with various skin disease is accompanied by an altered concentration of serum (Ig). Importance of trace metals like (Cu) and (Zn) in psoriasis was accepted by more studies. Both elements are known to influence each other metabolis competition for binding sites.

in the protin molecule of enzyme (9). A positive results appear between high (Zn) but low (Cu) level with high (AIP) in psoriasis compared to the controls.

Materials and Methods

All chemical and standard solutions that used in this work was of highest analytical grade obtained from commercial sources and used without further purificaton, blood samples were collected for immunoaurorscence studies and other biochemical like trace element and alkaline phosphates. The blood was centrifuged for 15 min at 1500 Xg and serum stored until used for essay.

- Determination of the serum immunoantibuline (IgG, IgA, IgM) was performed according to the single radial immunodiffusion technique of (mancine et al, 1972) (9) ktt taken from human company for clinical analysis.

- Stock standards of trace element (Zn, Cu) were of spectrolol trade mark; each of them with essential concentration of 100 mg/L, equipment that use for this essay was atomic absorption spectrophotometer, shimadzu AAS AA-670 G, K.K – Japan. (10).

- AIP was determined by colorimetric determination of Alkaline phosphates activity by using the manour of KiNK (11) by using kit of bio- Merirux, france, equipment that used was spectrophotometer model – CECL, France.

Results

A significantly lower mean of IgG level occurred in patients with psoriasis vulgaris (P<0.05) and nonsignificant depressiion in both IgA, IgM level table (1). In this table we can see that the value of IgG in psoriasis patients was (133.64+ 1.2 mg/ml) while in control group (156.38 + 3.2 mg/ml), while no significant value determined in IgM, IgA level [table (1)]. Serum of (Cu)level was found low in all patient with psoriasis (69.87 μg / dl) than in control (98.08 μg / dl ). A significant value (P<0.05) was found in level of Zinc, it was very high in psoriasis patient (120.9+ 22.65 μg / dl) as compared to control group (105 + 20.93 μg / dl) [table (2)] finally this search found that the serum of (AIP) was high in all patient (12.06 + 5.3 Iu/ml) if it compared with control group ( 8+ 1.60 Iu/ml), the difference was significant statistically (12) [table (2)]

Discussion

The relation ship between levels of immunoglobulin, AIP and trace element is not widely reported and measuring the sera of IgG, IgA, IgM in patient with psoriasis demonstrated to a few studies that come to conform our study, such a result observed by C. willim, Facp et al (13). They found that IgG level in patient with psoriasis was less than its level in Healthy samples; so that our studies found that the IgG level was (133.64 + 1.2 Iu/ml) while in control samples was (156.38 + 3.2 Iu/ml) this result was very close with scientific opinion that the lower level of IgG in patients with skin disease might be to the result of general immuneresponse to an antigen responsible for the skin disordor (directly or indirectly) (14). It is also possible that a change in the reactivity of lymphocide cells is primary and the skin disease secondary; therefore the cause of psoriasis is not well understood by medical science (15). The tendency to get psoriasis is inherited, it was thought that lymphocytes called T cells in the skin secret growth factors which stimulate the rapid growth of skin cells (4). A longitudinal study of serum Ig levels is required in larger series of patient with skin disease to demonstrate whether the serum Ig changes are primary and the skin lesions secondary (16). An importance of trace metals like Cu, Zn, in psoriasis was accepted by many studies (5,6,17). Both elements are known to influence each other metabolism for binding sites in the protein molecule of enzyme. Our result found that the serum copper was low (69.87 μg / dl) while in control (98.10 μg / dl) and this agree with result of Mw. Kalff, S. ogaw et al (18). While another study
found that no significant result in level of copper and high level of zinc \(^{(6)}\). Also varly H, et al found a good result as same as our research \(^{(7)}\). They discus the result of high level of Zn and low level of Cu as a nature of population nutrition of dietary and in our results may be attributed to the dependence of Iraqi population nutrition on control protein grains and vegetable and with low meat fish and poultry products. The low level of Cu and high level of Zn in our patients is difficult to interpret. It may be due to the response of patients to the treatment or because that zinc plays an important role in reproductive physiology in both male and female because body synthesis is dependent on dietary zinc level and it is required for normal function of the hypothalamic pituitary – gonadl axis \(^{(19)}\). A positive appears between high AIP, Zn but low level of Cu in psoriasis patient as compared with controls, it is t possible the role of Zn and AIP might be playing, but their involvement in antigens can not ruled. Finally our search suggests that globulins, Zn and AIP are the variable factors due to remission phase of psoriasis.

<table>
<thead>
<tr>
<th>No. of group</th>
<th>IgG mg/ml</th>
<th>IgA mg/ml</th>
<th>IgM mg/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient (55)</td>
<td>134</td>
<td>125</td>
<td>121</td>
</tr>
<tr>
<td>Range</td>
<td>133.6 ± 1.2</td>
<td>125.6 ± 3.8</td>
<td>121.09 ± 1.06</td>
</tr>
<tr>
<td>Mean ± SD</td>
<td></td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
</tr>
<tr>
<td>Control (26)</td>
<td>156</td>
<td>124.6</td>
<td>121.03</td>
</tr>
<tr>
<td>Range</td>
<td>156.38 ± 3.2</td>
<td>124 ± 2.91</td>
<td>120.990 ± 1.30</td>
</tr>
<tr>
<td>Mean ± SD</td>
<td></td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
</tr>
</tbody>
</table>

Table (1) values of sera IgG, IgA, IgM in both control and patient

- IgG level was statically significant P < 0.05

<table>
<thead>
<tr>
<th>No. of group</th>
<th>Zn (\mu g/\text{dl})</th>
<th>Cu (\mu g/\text{dl})</th>
<th>AIP (\text{IU/ml})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient (55)</td>
<td>121</td>
<td>69.87</td>
<td>12.06</td>
</tr>
<tr>
<td>Range</td>
<td>120.96 ± 22.65</td>
<td>70.2 ± 32.21</td>
<td>12.9 ± 5.31</td>
</tr>
<tr>
<td>Mean ± SD</td>
<td>120.96 ± 22.65</td>
<td>70.2 ± 32.21</td>
<td>12.9 ± 5.31</td>
</tr>
<tr>
<td>Control (26)</td>
<td>105</td>
<td>98.10</td>
<td>8</td>
</tr>
<tr>
<td>Range</td>
<td>105 ± 20.90</td>
<td>98.08 ± 31.06</td>
<td>8 ± 1.601</td>
</tr>
<tr>
<td>Mean ± SD</td>
<td>105 ± 20.90</td>
<td>98.08 ± 31.06</td>
<td>8 ± 1.601</td>
</tr>
</tbody>
</table>

Table (2) values pf sera Zn, Cu, AIP in both patient and control

- All value was significant P < 0.05
References

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