Laboratory Findings in Acute Ordinary Urticaria in AL-Ramadi City

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(**Received:** 28 / 2 / 2010 ---- **Accepted:** 28 / 6 / 2011)

Abstract

Background: Acute urticaria is a vascular reaction of the skin characterized by appearance of wheals for less than six weeks duration.

Objective:: to evaluate the blood count, blood film and differential, renal function and liver function for the patients complaining of acute ordinary urticaria for more than one week.

Paients &methods: A total of 45 patients with acute ordinary urticaria were seen between October 2008 and June 2009 in the Department of Dermatology and Venereology and Laboratory Department in AL- Ramadi Teaching Hospital, Anbar, Iraq. Detailed history was taken from each patient regarding all points related to the disease. Complete blood count, blood film, liver function test and blood urea were done for all patients in this study.

Results: The Age of Patients, ranged between (13-65) years with mean ± SD of (32 ± 13) years. They comprised 23 female and 22 male with female to male ratio of 1:1. Disease duration ranged between (7-17) days with mean ± SD of (9±2.1) days. All Patients showed elevated number of eosinophiles in blood film. Six (11%) patients had haemoglobin less than 12 g/dl. ESR were elevated in 3 patients(6.5%). Other laboratory tests were within normal value. Conclusions: The laboratory studies for a patient with acute ordinary urticaria is not mandatory. And the eosinphiles may play a role in the pathogenesis of the disease

Keywords: Ordinary urticaria, Laboratory studies, Al-Ramadi city.

Introduction

Urticaria is a vascular reaction of the skin characterized by the appearance of wheals, generally surrounded by a red halo or flare and associated with severe itching, stinging or pricking sensations. [1, 2]

Urticaria is often classified as acute (less than six weeks duration) and chronic (more than six weeks duration) or divided as physical urticarial (defined by the triggering stimulus), urticarial vasculitis, contact urticaria and lastly ordinary urticaria when there are episodic urticaria not in the categories above [2, 3, 4]

The most common causes of acute ordinary urticaria are infections, medications, and food. The best tools in the evaluation of these patients are a comprehensive history and physical examination. And if the cause is not obvious, investigations such as complete blood count (CBC), blood film and differential, erythrocyte sedimentation rate, liver function test (LFT) are often deferred until it has persisted for a few weeks [4, 5], these tests yield information about infections (viral hepatitis) inflammatory disorders (as connective tissue disorders and malignancies). [2, 6] The aim of this study is to evaluate the complete blood count, blood film and differential, renal and liver functions for those complaining of acute ordinary urticaria for more than one week.

Patients and methods

A total of 45 patients with acute ordinary urticaria were seen between October 2008 and June 2009 (Winter and spring times)in the Department of Dermatology and Venereology and Laboratory Department in AL-Ramadi Teaching Hospital, Anbar, Iraq. All patient were outpatients and treated by the usual treatment of acute urticaria. Detailed history was taken from each patient regarding age, sex, duration of attack, family history and drug history, All patients did not receive any medical remedies before the start of the study.

Patients with more than one week history of urticarial wheals, with no obvious cause were included in this study. The following Patients were excluded from study; history of smoking, bees stings, fever, joint pain, Pregnant patients, also patients with known connective tissue diseases and those on regular chronic drugs intake or with recent blood transfusion were excluded.Samples of blood (5 ml) were taken from each patient. Haemoglobin was estimated using as dependent trivpalatifip trivapaly alleviate this blood viricianid potassium solution (solution drapkin), which oxidate methahaemoglobic, which in turn ultimately lead to cyanide almethahaemoglbiin density and can be read using the spectrophotometer. Erythrocyte sedimentation rate was estimated by using the Westergren method, where this method is the development of blood containing anti-coagulations in a narrow glass tube and a vertical post-well period of time, information will be noted after the deposition of blood cells and density based on quality, where the red blood cells settle in the bottom of the glass pipe, followed by white blood cells and blood tablets while the plasma layer at the top of the pipeline. [7] White blood cells count was done by the method of White Blood Cell count alleviate a certain amount of blood solution mitigation (Turkey's fluid), which works to break dawn red blood cells and prevent clotting of blood cells, making it easier to see clearly under the microscope. [7] Differential white blood cells carried out by calculating the percentage of each type of these species in the white bead in blood examination to be Leishman's stain. Regarding chemical analysis which included liver function test including, Glutamic-Oxaloacetic-transaminase (GOT), and Glutamic-pyruvic-transaminase (GPT) and Alkaline phosphates,Liver enzymes (GPT&GOT) were estimated by using kit from the (BIOMERIEUX)

french association, from through the use of standard and reflect the results in units of (U/L), which is used (standard pyruvate) concentration of 2 m mole/l, from where it is attending a series of concentrated pyruvate ranging between 0.05-0.45 ml of pyruvate addition to the control-free standard solution, add each of the control and solution 0.2 ml of distilled water and then complete the volume of each of solution and control of the GPT & GOT buffer 1 ml , the pipette took place well and then add 1 ml from 2,4-dinitrophenylhydrazine, then set a period of 20 minutes at a temperature of 20-25C˚, after the addition of 10 ml from sodium hydroxide solution for each pipette, the pipette took place well after reading absorbability 5 minutes ad 520 nm. [7] Alkaline phosphatase enzyme activity was done by using kit from (France) association activity is calculated by taking 4 test tubes and the sample represents the first record and the second and third control sample, and have added free-fourth of the sample, with addition of 2 ml from buffer to the four tube, then add 0.05 ml from sample to the pipe first and then add 0.05 ml from standard to the second pipe and then mix well and set a 37 C˚ for 15 minutes, then add 0.5 ml from inhibitor to the four tubes and then add 0.5 ml from ferycianid potassium to the four tubes and then add 0.05 ml from sample to the third pipe, then add 0.05 ml from distilled water to the last pipe, and set a room temperature for 20 minutes in dark and read the absorptive wave length of 510 nm. Renal function test include, blood urea, urea was measured through the use of kit from association (linear chemical-spain), urea was estimated in serum using Nessler method is based on the transfer of serum urea to ammonium carbonated by the enzyme AL-Urease, in 37 C˚ and then turn the gas AL carbonate to ammonium, which can be detected by adding a color solution is know as solution Nessler solution produces a yellow to orange color of the compound of the iodide complex zibakik Alamuinacci. [7]
Statistical analysis was done by using standard T test. All data were presented as mean± standard deviation (mean ± SD).

Results

A total of 45 urticarial patients, their age ranged between (13-65) years with mean ± SD of (32±13 years), the comprised 23 females and 22 males with a female to male ratio of (1:1). Disease duration ranged between 7 to 17 days with a mean ± SD of 9±2.1 days. Regarding complete blood count and blood film and differential cells results for all patients were shows as the following : (Table-1)

1. Haemoglobin blood (HB) ranged between 10-15 g/dl with mean ±SD of (12±1.5)g/dL. Six patients (11%) had haemoglobin Blood less than (12 g/dl).
2. Erythrocyte sedimentation rate (ESR) ranged between (5-35) mm/h with mean±SD of (14±3.8) mm/h. Three patients (6.5%) had Erythrocyte sedimentation rate more than 20 mm/1h.
3. The white blood cells ranged from (4500-8200) cell/cubic mm^3 with a mean ±SD of (6022±557.37) cell/mm^3.
4. Neutrophiles ranged between (46-62) cell/mm^3 with mean ±SD (54±2.70) cell/mm^3.
5. Eosinophiles ranged between (5-9) cell/mm^3 with mean ±SD (7±1.18) cell/mm^3.
6. Basophiles ranged between (0-1) cell/mm^3.
7. Lymphocytes ranged between (30-38) cell/mm^3. with mean ±SD (34±1.34) cell/mm^3.
8. Monocytes ranged between (2-8) cell/mm^3 with mean ±SD (5±1.83) cell/ mm^3.

Regarding chemical analysis which includes liver function test and renal function for all patients is as following:- (Table-2)

1- Alkaline phosphatase ranged between (8-13) IU with mean±SD (12-1.41)IU.
2- Glutarate Pyruviate transaminase ranged between (12-20) IU with mean ±SD (16±2.55) IU.
3- Glutarate oxaloacetate transaminase ranged between (13-20) IU with mean ±SD (16±1.76) IU.
4- Blood urea ranged between (27-49) mmol/l with mean ±SD of (36±5.3) mmol/1.

Table (1) blood film and differential cells results in acute ordinary urticaria n=45

White Blood Cells	%	M ± SD
Neutrophiles	46-62%	54±2.7
Eosenophiles	5-9%	7±1.18
Basophiles	0-1%	
Lymphocyts	30-38%	34±1.34
Monocytes	2-8%	5±1.83

Table (2) chemical analysis results in acute ordinary urticaria n=45

	Range	M ± SD
Alkaline Phosphatase	8-13 u/L	12±1.41
Glutamic-Pyruvic-transaminase	12-20 u/L	16±2.55
Glutamic-Oxaloacetic-transaminase	13-20 u/L	16±1.76
Blood Urea	27-49 mmol/L	36±5.39

Discussion

The ordinary urticaria includes any episodic urticaria after exclusion of physical urticaria, Contact urticaria and urticarial vasculitis. [2,3,4] Many general practitioner doctors facing frequently cases of acute ordinary urticaria in their daily practice, and they depend on clinical features for the diagnosis, and they do not misdiagnose such cases. But they are looking for the cause and sending the patient to multiple blood investigation like complete blood picture, blood film, liver function test and renal function tests, and these are an expensive laboratory tests And these test are non diagnostic. Acute

ordinary urticaria with duration ranged between 7-17 days were included. This may indicate a continue stimulation that activates the disease process. The present study shows that eosinophiles cell counts in the peripheral blood were increased in all patients. This was comparable to previous studies. [8,9] This may indicate that eosinophiles may plays a major role in the inflammatory mechanism in patients with acute urticaria. And this increases the suspension of infection or drugs intake as a causative agent of the disease. Because of the various acute benign infections are most frequently associated with drug (antibiotics) therapy, and they are the main triggers of acute urticaria.[10] Liver enzymes and blood urea show no changes during this study, as these enzymes test are normal, so liver disorders exclude as a cause of urtacaria. The small number of patients in this study, are related to the short duration of the study, and only include patients with disease duration between (1-6) weeks, and only patients complaining of ordinary urticaria. In conclusion, laboratory studies for a patient with acute ordinary urticaria are not mandatory and the eosinophiles may play a role in the pathogenesis of the disease. Acknowledgments: The authors would like to thank all patients. And would like to express our deep thanks to the Department of Dermatology and Venereology and Laboratory Department in AL-Ramadi Teaching Hospital for their support.

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النتائج المختبرية في مرض الشرى الاعتيادي الحاد في مدينة الرمادي

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(تاريخ الاستلام: 28 / 2 / 2010 ---- **تاريخ القبول:** 28 / 6 / 2011)

الملخص:

الخلفية: الشرى الحاد هو عبارة عن ردة فعل وتوسع في الاوعية الدموية للجلد ، يتميز بظهور (wheals) لفترة أقل من 6 أسابيع.

الاهداف: أجريت هذه الدراسة لتقييم صورة ومسحة الدم ووظائف الكليتين والكبد لمرضى الشرى الاعتيادي الذين يعانون لأكثر من أسبوع.

المرضى والطرق:45 مريضاً اشتركوا في هذه الدراسة للفترة مابين تشرين الأول 2008 وحزيران 2009 في قسم الأمراض الجلدية والزهرية وقسم المختبرات في مستشفى الرمادي التعليمي . وتم تسجيل كل المعلومات المتعلقة بالمرض آعلاه . وتم أجراء الفحوصات المختبرية المذكورة آنفا.

النتيجة: كانت أعمار المرضى تتراوح بين 13–65 سنة وبمعدل (32± 13) سنة ، 23 منهم كانوا اناثاً و22 ذكوراً . وكانت فترة المرض تتراوح بين 7–17 يوم وبمعدل (9±2,1) يوم . وقد لوحظ أرتفاع في خلايا الدم الحامضة (eosinophiles)عند جميع المرضى . ووجد أن الهيموغلوبين أقل من 12 غم/ديسيلتر في 6(11%) مرضى . وأن النتائج المختبرية الأخرى للكليتين والكبد كانت في ضمن الحدود الطبيعية .

الاستنتاجات: نستنتج أن الدراسة المختبرية في حالة الشرى الاعتيادي الحاد غير ضرورية ووجد أن خلايا ألدم الحامضة مرتفعة ويمكن أن يكون لها دور في تطور ظهور هذا المرض.

شكر وتقدير: يتقدم مؤلفو هذا البحث بالشكر الى كل المرضى الذين اجري البحث عليهم وكذلك يتقدمون بالشكر والتقدير الى قسم الأمراض الجلدية والزهرية وقسم المختبرات في مستشفى الرمادي التعليمي.