

# Elevated IgE Levels in Patients with Low Whole Blood Histamine

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## Introduction

An accurate immunoglobulin E is important because many individuals have allergy. Patients who are allergic are usually releasing and exhausting their histamine supply by an immunoglobulin E fixed reaction (West, 1985). We have found that patients with elevated IgE frequently have extremely low blood histamine. This may make it possible to predict histamine levels on the basis of IgE for physicians who do not have access to accurate histamine determinations.

## Methods

Whole blood histamine was determined by the method of Iliev, Nichols and Pfeiffer (1967). Serum immunoglobulin E levels were done by the laboratory of Smith Kline and French.

## Results

Seventeen patients with a blood histamine of 115.35 (normal 40-70) with a standard deviation  $\pm 12.3$ , had an IgE  $100.89 \pm 91.2$ . In contrast, ten patients with a blood histamine  $10.81 \pm 2.7$  had an IgE of  $437.8 \pm 554.7$ . A comparison of the two IgE in the two groups showed a P value of .03. Very low histamine patients have significantly higher IgE levels than very high histamine patients.

## Discussion

*Whole Blood Histamine Better than Plasma Histamine* Elevated IgE is well known to predict allergic sensitivity to respiratory allergens as well as food sensitivities. It is not uncommon to find an elevated IgE in atopic illnesses. Plasma histamine is known to have a transient rise during allergic-type reactions. Yet, plasma histamine is only 2% of whole blood histamine (Frewin et al., 1986 and Keyzer et al., 1984).

Studies with plasma histamine are quite equivocal. Treatment with an antihistamine, Chromolyn, lowers plasma histamine. Yet, plasma histamine levels do not correlate with synovial fluid histamine levels in rheumatoid arthritis (Frewin et al., 1984). Rise in plasma histamine is associated with migraine (Heatley et al., 1982). Plasma histamine has a transient rise during allergic-type reactions, such as respiratory disorders (Bellanti et al., 1981) (Drew et al., 1982) (Macquin et al., 1984), but does not usually correlate with IgE levels. Hence, it is much better to measure whole blood histamine than plasma histamine in allergic individuals because the baseline value is unrevealing and represents a small fraction of total body histamine. Plasma histamine values are valuable to measure short-term changes in response to disease.

High whole blood histamine patients are marked by headache (Kaliner et al., 1982) as well as depression and other abnormalities (Pfeiffer, 1975). In contrast, low blood histamine patients can be found to have chronic schizophrenia, Parkinson's disease, and can be extremely allergic individuals. Low blood histamine also occurs during pregnancy, probably due to elevation in copper.

High IgE (greater than 300) is probably a good predictor that low histamine levels exist. No seasonal variations in whole blood histamine during allergic reaction (Hasegawa et al., 1983) or during asthmatic rhinitis attacks (Izuma et al., 1984) have been found. Whole blood histamine is an extremely stable entity. For those physicians who do not have available plasma or whole blood histamine determinations, an IgE determination may be helpful. Histamine levels remain fixed during life and rarely change in response to therapy. In contrast, IgE levels do respond to therapy. We recently treated a patient with IgE of 4000 with 4-7 grams of vitamins daily. In one year IgE fell to 3000, and in two years to 1400. IgE levels may be useful to monitor therapeutic responses in allergy patients.

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**Histamine - References**

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