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<b>Thesis Title</b>	<b>A Study of Serum Interleukin-6, Tumor Necrosis Factor-<math>\alpha</math> and Some Trace Elements in Patients with Fibromyalgia Syndrome</b>			
<b>Year</b>	<b>2013</b>			
<b>Abstract</b>	<p><b>Background :</b> Fibromyalgia Syndrome (FMS) is a common chronic widespread pain syndrome , usually associated with other somatic and psychological symptoms including fatigue , sleep disturbance , and cognitive difficulties like difficult concentration .</p> <p>The prevalence of fibromyalgia is reported to be 2-4% with a female to male ratio of about 9:1, its prevalence increase with age from (30-50) , declining thereafter .</p> <p>The etiology and pathophysiology of fibromyalgia has not been clearly understood and that makes the disorder a frustrating condition for the patients and the physician .</p> <p>The etiopathology of fibromyalgia is not clear , though cytokines like interleukin-6 is a potent stimulator of hypothalamic- pituitary axis via activation of the hypothalamic corticotrophin-releasing hormone (CRH) .</p> <p><b>Objective :</b> To evaluate interleukin-6 (IL-6), tumor necrosis factor -alpha (TNF-<math>\alpha</math>)and high sensitivity-C Reactive Protein (hs-CRP) and their relation with symptoms included in the underlying etiopathology of fibromyalgia patients since interleukin-6 is a potent stimulator of hypothalamic pituitary axis via activation of the hypothalamic CRH .</p> <p><b>Setting :</b> This cross sectional case-control study was performed at the Rheumatology and Rehabilitation Consultation unit , Baghdad Teaching hospital/medical City during the period from November 2010 to July 2011 . The laboratory tests were done in The Teaching Laboratory / Medical City , and The Toxicology Center / The Hospital of Specialized Surgeries</p> <p><b>Subjects :</b> The study included 57 patients with FMS ( 49 females + 8 males ) , their mean age ( 43 <math>\pm</math> 10.9) years , and 34 healthy control individuals ( 28 females + 6 males ) who their age and sex matching</p>			

with the FMS patients .

**Methods :** Serum levels of Interleukin-6 , Tumor Necrosis Factor- $\alpha$  , high sensitivity – C Reactive Protein , and thyroid hormones were estimated by using ELISA technique .

Zinc(Zn) , Copper(Cu) , and Selenium(Se) were estimated by Flame , and Flameless Atomic Absorption Spectrophotometric techniques.

**Results :** The results show that the mean ( $\pm$  S.D.) values of serum IL-6 , TNF- $\alpha$  , and hs-CRP concentrations were significantly higher in fibromyalgia patients than healthy control ( $p < 0.05$ ).

Mean values of Sera of thyroid hormone levels were non-significant when compared with control group . The results of serum concentration of Zn , Cu , and Se of FMS patients were significantly different from that of control group (  $p < 0.05$  ) .

**Conclusion :** The elevated IL-6 and TNF- $\alpha$  in FMS patients considered a promotion to fatigue , hyperalgesia , pain and depression . TNF- $\alpha$  is also associated with stress , rapid eye movement sleep and allodynia .