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Relationship between interleukin 17 & 6 in patients with varicocele compare with a control group

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Abstract

The spermatogenesis process is very complex and involves many processes that lead to giving normal sperm, these sperms are very important for Fertility in the male. The cytokines are very important in male fertility which gives a significant job in fertilization. The varicocele patient grade 1,2 and 3 (n= 25 , 25 and 25 Respectively) compared with control patient (n=13). The results of this study showed that cytokine level (interleukin 17 & 6) is a significant increase in varicocele patient compare with the control group, also a positive correlation was found between interleukin 17 & interleukin 6 in varicocele patient, while the result showed a negative correlation between interleukin 17 and the sperms concentration, sperm Progressive motility percent and sperm normal morphology present in a patient with varicocele grade 1,2 and 3 respectively ($r = -0.574$, $r = -0.647$ and $r = -0.487$). Also a negative correlation between interleukin 6 level and the sperms concentration, sperm Progressive motility percent and sperm normal morphology present in varicocele patient grade 1,2 and 3 Respectively ($r = -0.467$, $r = -0.324$ and $r = -0.307$). The present study concludes that important role of interleukin 17 and interleukin 6 appears to be a key cytokine regulating local tissue inflammation, the study showed varicocele has a Harmful effect with the time on cytokines levels and increases the diameter.

Keywords: Cytokine, Interleukin 17, Interleukin 6, varicocele.

1. Introduction

Varicocele is an abnormal case that has an effect on the testes, the vessels in the scrotum abnormal enlargement case increase on the testes temperature (Jensen *et al.*, 2017). Lifestyle case Varicoceles which occur in around 15% to 20% of all men, varicoceles detected by the physical way in the erect position are called clinical varicoceles (AL-Msaid, 2013). They are graded from 1 to 3 in severity, with those felt only on a Valsalva maneuver being grade

1, those felt without a Valsalva maneuver as grade 2, and directly visible, grossly dilated, tortuous veins as grade 3. (Kisa *et al.*, 2008). Varicoceles which are not clinically evident, and are diagnosed only by color doppler ultrasonography, Varicoceles which are not clinically evident, and are diagnosed only by an investigation such as color doppler ultrasonography (AL-Msaid, 2013), a researcher that shown the varicocele has a relationship with infertility also associated with cytokines level

(Politch *et al.*, 2007). The T immune cells are released Cytokines. Cytokines play an important role in cell signaling and run out wide variform activities. (Tripathi & Sodhi, 2008) , many reported that showed cytokines may be mediators of oxidative stress and have the potential to alter redox potential equilibrium (AL-Msaid & AL-Sallami,2018), patients with genital tract inflammation have higher cytokines level may justice pro-oxidant and antioxidant pep in the Male Reproductive system. (Zhou *et al.*, 2012).

2. MATERIALS AND METHODS

Specimens were collected Semen and serum from varicocele patient grades 1, 2 and 3(n= 25, 25 and 25 respectively) compare with control male (n=13) that received to a fertility center. The average age of infertile patients was (36.24±47) years, the total samples which were tested are 88 samples.

Biochemical tests were performed on all samples and IL17 & IL6 Levels were assessed by immunological method (Enzyme-Linked-Immuno-Sorbent- Assay) by using ELISA reader (Huma Germany origin). All tests were performed at the department of biology/faculty of Science/ University of Kufa. ELISA kits used in this study were purchased from Abcam USA as follows: (IL17) (Ab100556) and (IL6) (Ab46042) .

Ethical approval:

Consents were collected from all participants declaring their willingness in participation and ethical approval was taken from the ethical committee of the Kufa university for study procedures.

3. RESULTS

The result showed a significant interleukin 17 level was increased in Varicocele patient grade 1,2 and 3 (mean± Std. Error 276.13±8.71 Respectively)also significant interleukin 6 level was increased in Varicocele patient grade 1,2 and 3 (mean± Std. Error 351.23±8.92 Respectively).

while the results showed a negative correlation between interleukin 17 and the sperms concentration, Sperm Progressive motility percent and sperm normal morphology present in a patient with varicocele grades 1,2 and 3 respectively (r= -0.574, r = -0.647and r = -0.487). Also, there is a negative correlation between interleukin 6 level and the sperms concentration, Sperm Progressive motility percent and sperm normal morphology present in varicocele patient grades 1,2 and 3 Respectively (r= -0.613, r = -0.390 and r = -0.304).

The results showed a positive correlation between interleukin 17 level and interleukin 6 level in Varicocele patients respectively in grade 1, grade 2 and grade 3 (r= 0.659, r = 0.682 and r = 0.681) .

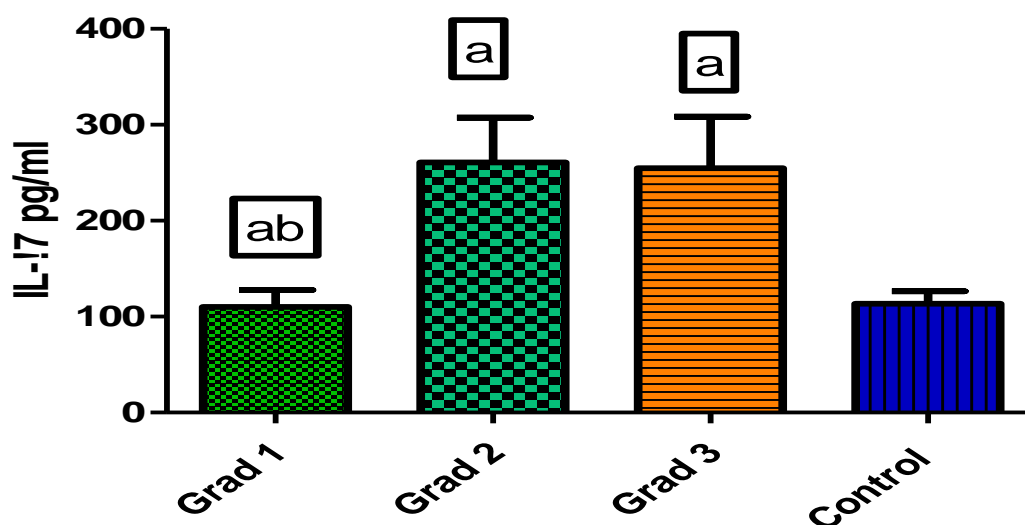


Figure 1: The comparison of interleukin 17 level in the serum between control, varicocele patients
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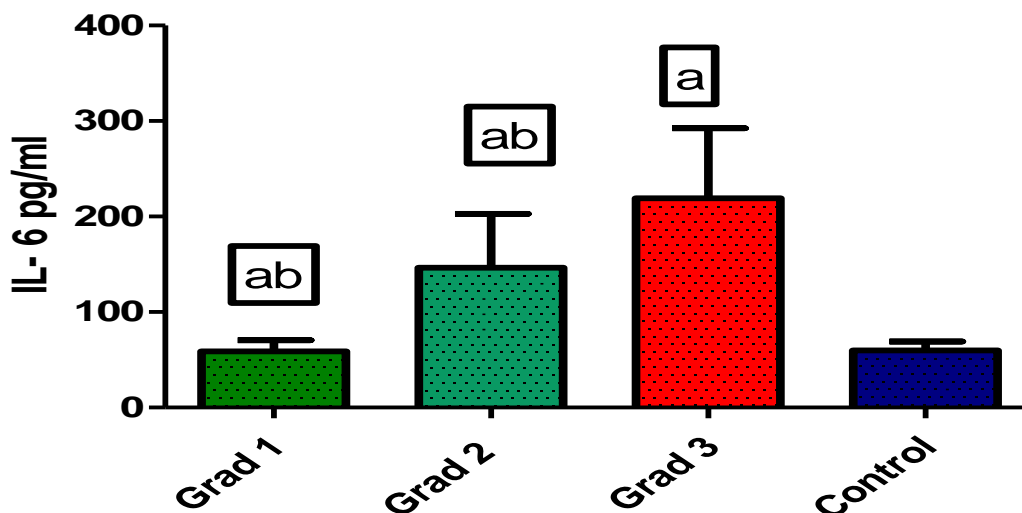


Figure 2: The comparison of interleukin 6 level in the serum between control, varicocele patients

Table 1: Correlation coefficients and P value To cytokines (IL-17 & IL- 6) with some semen parameters (sperm concentration, sperm progressive %, and sperm morphology %) in three grad categories from infertile men varicocele patients.

Parameters			Grad 1	Grad 2	Grad 3
Sperm Concentration with	IL - 17	Correlation coefficients	-0.574	-0.647	-0.487
		P value	0.09	0.337	0.275
	IL - 6	Correlation coefficients	-0.467	-0.324	-0.307
		P value	0.112	0.038	0.620
Sperm Progressive % with	IL-17	Correlation coefficients	-0.592	-0.439	-0.302
		P value	0.002	0.028	0.318
	IL-6	Correlation coefficients	-0.613	-0.390	-0.304
		P value	0.001	0.054	0.609
Sperm Morphology % with	IL-17	Correlation coefficients	-0.698	-0.467	-0.517
		P value	0.0001	0.019	0.448
	IL-6	Correlation coefficients	-0.693	-0.633	-0.557
		P value	0.0001	0.0007	0.714
IL - 17 with IL-6		Correlation coefficients	0.659	0.682	0.681
		P value	0.157	0.052	0.024

4. DISCUSSION

The present study showed increasing the level of interleukin 17&6 in varicocele patient compare with control men, that may be due to the increase of the effect of varicocele on the testes tissue (El-enany *et al.*, 2015). The present study also showed a negative relationship between cytokine level and sperms parameters, that case may be due to increasing of temperature in testes when the sperm parameter decrease and cytokine increase (Kingston, 2008). The cytokine level that has a relationship with spermatogenesis caused by increment free radicals (Kothari *et al.*, 2010).

Conflict of interest

The authors declare no conflict of interest.

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