

Treatment of Rheumatic arthritis by Diod Laser
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Abstract

Rheumatoid arthritis is the one of the most common inflammatory arthritis .one or multiple factors probably predispose an individual to developing Rheumatoid arthritis that can be treated by diod laser . laser is used in rheumatology practice for biostimulation The purpose of this study to evaluate change in haematological value the most important value in this disease is ESR test . The ESR is used clinically test to detect the presence of infection ,it has found wide use ESR a means of monitoring the statues of chronic inflammatory diseases such as Rheumatoid arthritis. The lights induced biological effect depend on the parameter of irradiation the result suggest that the laser act as triggering factor while induces systematic effects through the circulation when laser inter acts with living cells so it has systematic effects throught circulation blood .

Blood samples for 14 patients suffering from Rheumatoid arthritis where taken before and after laser treatment to stimulate the joint protection , pain control and trancutaneous nerve stimulation .

The study showed clear change in ESR value because the light induce the biological effect ,depend in parameters of irradiation ,the result that suggest that the laser explained by action of low intensity light on cll proliferation . This observation is due to the fact cell proliferation is very action in Rheumatoid arthritis and regeneration is significant by laser irradiation .

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Introduction

The photochemical interaction stems from empirical observation that can induce chemical effect and reaction within macromolecules or tissue one of the most popular was created by the evolution if self the energy release due to photo synthesis . In the field of medical laser physics photochemical interaction mechanism play significant role .

During photodynamic therapy and biostimulation .

Photochemical take place at very low power density and long exposure time ranging from second to continues wave diod laser is most useful where very low energies are required as photochemical interaction. in most important application of photo chemical interaction is biostimulation in Rheumatoid arthritis , wound healing and anti inflammatory properties by red or nearinfra red light sours such as diod laser 1-10 j /cm² biostimulat the joint or wound. Biostimulation is believed to occur low irradiance. It is related to enhancing certain metabolic pathways in the living cells, for example, healing of skin lesions and relief of pain.

The present of the work a comparison of values before and after laser treatment with laser for Rheumatoid arthritis is present .

Materials and methods

Blood samples were taken from 14 patients suffusing from Rheumatoid arthritis(at medical city teaching ,specialities hospital) before and after laser treatment .The average age was between 34-80 years the experimental period was 10 month.

Blood samples for hematological in value (ESR value) was taken after end of the treatment.

Each patient was treated with certain laser parameter as shown in table (1)

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Table(1)parameters for each patient

	Case no	Power / mj/cm ²	Duration of operation(min)
	1	9 05	5
	2	905	5
	3	905	5
	4	905	5
	5	905	5
	6	905	5
	7	905	5
	8	905	5
	9	905	5
	10	905	5
	11	905	5
	12	905	5
	13	905	5
	14	905	5

Haematological test (ESR test) disposable syringe , EDTA tube ,diluted blood is sediment an open ended glass tube of 30 cm in length mounted vertically on stand , westergren tube .

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Results

There was change in the value of ESR after laser treatment . after irradiation treatment there was decrease in the value of (ESR) for all the patients

Table(2) ESR value before and after laser irradiation.

Case no.	ESR mm/hr	
	Before	after
1	70	30
2	90	40
3	85	38
4	88	33
5	90	50
6	95	55
7	100	60
8	80	43
9	83	42
10	98	54
11	90	55
12	90	30
13	95	33
14	100	50

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Discussion

The pathogen of **rheumatic arthritis** is infiltration of the synovium with mononuclear cells, especially T cells and macrophages, and synovial internal lining hyper-plasia are hallmarks of the disease. The treatment of **rheumatic arthritis** was achieved by using diode laser. The mechanism of treatment is based on Biostimulation effect. Biostimulation affects on joint to prevent the infiltration of the cells and decrease of hyper-plasia. In recent years there are many reports that find, the same finding of haematological tests of this study, but they differ in the regions of human's body on which laser is applied like (Biostimulation) of bone with applied soft laser.

The aim of this study was the effect of continuous wave of diode laser irradiation on joint others studies by Nicolau and colleagues, the positive effect of low level laser therapy on the stimulation of the bone. The other studies in the same field of low laser irradiate were used for the radiation of red blood cells in the presence or absence of epinephrine. The red blood cells deformability was increase by epinephrine. The study showed the clear change in the value of ESR after laser radiation because all laser-induced biological effect depend on the parameters of radiate. The result suggest that the laser radiation play important roles to increase the local heat of the joint to decrease the infiltration on the cells, to decrease the amount of fluid that is lead to change in the rate of ESR.

Conclusion

- There is clear change in ESR value, for all patients were treated with diode laser for patient infected Rheumatic arthritis. Because laser had effect on joint to relieve the clinical feature of the disease.
- The suggest that the laser radiation play important role to increase the local heat of joint, to decrease the infiltration of the cell, to decrease the amount of the fluid that is lead to change value of ESR.
- Diode laser is important to observe that complete treatment of variable of laser irradiation within duration after treatment.
- After laser treatment, the patients no need to use special drugs or interference with routine life.

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