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**Article Title : Antibacterial Effectiveness Of Low Energy Diode Laser Irradiation On Management Of Periodontitis In Down Syndrome.**

**Class section : DEN1200/D200**

**Date : 03/20/14**

**Part II**

**6. Is the experiment design clearly described? Describe the design in your**

**own words.**

Yes, the design was clearly described in this article. I think the examiners used

parallel design on those two experimental groups which have Down Syndrome

patients suffering from periodontitis. 25 patients in Group I were applied with

new laser treatment along with scaling and root planning (LAS+SRP) on one half

of the mouth and other half was control. On the other hand, 10 patients in

Group II received just the basic periodontal treatment (SRP) to evaluate the

systemic effect of low level laser therapy on the non laser side. The design of this

experiment is also a longitudinal. The same sample of 35 patients were used in

assessing over several different time points. The results were shown in three

different time periods, accordingly at 2 weeks, at 6 weeks and at 12 weeks post

periodontal and laser treatment in both groups I&II.

**7. Have the possible influences on the findings been identified and controls**

**instituted? Describe and evaluate the use of controls and possible influences**

**(spurious variables).**

The study clearly mentioned that all thirty five patients have no ongoing general

disease during the time of the experiment. They all didn’t have any previous

periodontal treatment during last 6 months and anti-microbial drugs during the

last 3 months nor received laser treatment before the experiment had begun.

 There are possibilities of exhibiting changes in immune response that may

contribute to the development of periodontal disease in Down syndrome patient.

Generally, immune system in Down syndrome patients fluctuates frequently as

compare to other mental retarded or healthy patients.

**8. Has the sample been appropriately selected (if applicable)? Describe the**

**sample used in the study, and evaluate its appropriateness.**

When it comes to sample selection, the random sampling is the best method in

which every member of the population gets the equal chance of being selected for

the sample. This experiment did not mention about using random sampling

method for the sample collection. It seems like the sample were not selected

randomly from the population. It said that thirty five patients were selected from

the outpatient clinic of the Orodental genetic Department of the National

Research Center, Cairo. The size of the sample is also very important to make the

experiment more efficient and successful.

 The sample size should be large enough to accommodate the expected loss of

subjects. This experiment barely met the minimal size. Group I had 25 patients,

however, Group II had only 10 patients. Two groups were not equally distributed.

The unequal distribution of the sample size may affect the outcome of the

experiment.

 The age group of experiment sample ranged between 12-19 years. They have

same sample size, both at the beginning and the end of the investigation.

**9. Has the reliability and validity of the article been assessed? Evaluate, and**

**state the test/diagnosis results.**

Yes, the reliability and validity of the article have been assessed. The experiment

used means and standard deviations in calculating the coefficient of variation

(CV) for each DNA concentration. Intra-class correlation coefficient (ICCs) was

used for reliability analysis.

 The results included statistical analysis obtained from SPSS program version 12.

Descriptive statistics were obtained by the use of mean, standard deviation and

prevalence.

**10. Is the experimental therapy compared appropriately to the control**

**therapy? Describe and evaluate the use of the control group.**

I don’t think the experimental therapy was compared to the control therapy

clearly. I am still very confuse about the conclusion the author had drew for this

experiment. The examiners could have made this experiment more comprehensive

by choosing equal amount of sample size for each group. One group should have

applied SRP+LAS and other group with just SRP. The split mouth design

performed in this experiment had made the result very perplexed. It (split mouth

design) had made the experiment appear as a double control groups.

 The sample size of the experimental group I was larger than the control group

II. The author mentioned detail about experimental therapy, but he had failed in

comparing the two groups fairly. The control group II in this experiment was

given with a basic periodontal treatment SRP to evaluate the systemic effect of

laser on the none laser side. Examiner’s main objective was to evaluate the

antibacterial effectiveness of laser on periodontitis in patient with Down

Syndrome. Comparison in the results were very ambiguous and confusing.

**11. Is the investigation of sufficient duration? Evaluate, and explain your reasoning.**

Yes, the duration of the investigation was sufficient. Our experiment was about

how low level laser therapy affects treating periodontitis patients with Down

syndrome over a period of time. There were three different time period lengths

used in this experiment. They were at 2 weeks, at 6weeks, and at 12 weeks. The

length of this experiment was 12 weeks, which is almost three moths. The result

should be clearly evident within 3 months.

1. Actinmycetcomitans and P. gingivalis were the most common periodontal

pathogen bacteria found in Down Syndrome patient as compare to other

mental retarded or healthy patients. These bacteria were found in subgingival

plaque from Down Syndrome patients compared to controls. The periodontal

pathogens are susceptible to killing by red light after their sensitization with

toluidine blue O (TBO). Low-output diode laser emits red and orange

wavelengths, which are very efficient in damaging bacteria cells, and they are

used for ophthalmology and dental applications.