ORIGINAL PROF-545

EFFECT OF CLARITHROMYCIN ON HEPATIC & RENAL FUNCTIONS

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ABSTRACT

OBJECTIVE: To evaluate the effects of clarithromycin on the hepatic and renal function in the adult male volunteers. **SETTING:** Shaffee Medical Centre, Faisalabad. **PERIOD:** May, 2000. **METHOD:** 14 young healthy volunteers were given 500 mg clarithromycin. Blood samples were taken before and after the drug intake. Serum Bilirubin, serum GPT (ALT), serum Alkaline phosphatase, serum Urea and creatinine were estimated. **CONCLUSIONS:** There was a significant change in the level of serum Alkaline phosphatase and creatinine levels after the intake of drug. The use of clarithromycin should be carefully monitored to avoid renal and hepatic dysfunctions.

INTRODUCTION

Clarithromycin is a Macrolide compound. It is a broad spectrum antibiotic used in respiratory, gastrointestinal and many other infections caused by susceptible microorganism. The objective of the study was to evaluate the effects of clarithromycin on hepatic and renal functions of the human volunteers.

MATERIALS & METHODS

Fourteen healthy young adult males aged 19-21 years volunteered for the study. Written consent was obtained and the objective of the study was very clearly explained to them. 10 ml of the blood samples was obtained after an overnight fasting. Clarithromycin 500 mg tablet was given with a glass of water (250 ml).

The blood sampling procedure was repeated after one week which is a reasonable time for the washout of the drug from the blood. Pulse, blood pressure (systolic and diastolic) (mmHg), weight (kg) and body surface area (BSA) were recorded at both the occasions.

The blood samples were subjected to the biochemical determinations after separations of the serum. The tests performed were as follows:

1- Serum Alkaline Phosphatase.
2- Serum Alanine Aminotransferase (ALT).
3- Serum Bilirubin (Total direct, Indirect).
4- Serum Creatinine.
5- Serum Urea.

Commercially available kits (E-Merck) were used. Students "t" test was applied to compare the difference, in the mean values of different parameters before and after the use of drug.

RESULTS

The results of different body parameters before (study-1) and after the drug intake (study-2) are given in Fig-1. The comparison of the biochemical parameters before and after the intake of clarithromycin is given in table-1.

Fig – 1: Physiological Parameters before (study-1) and after (study-2) the intake of Clarithromycin

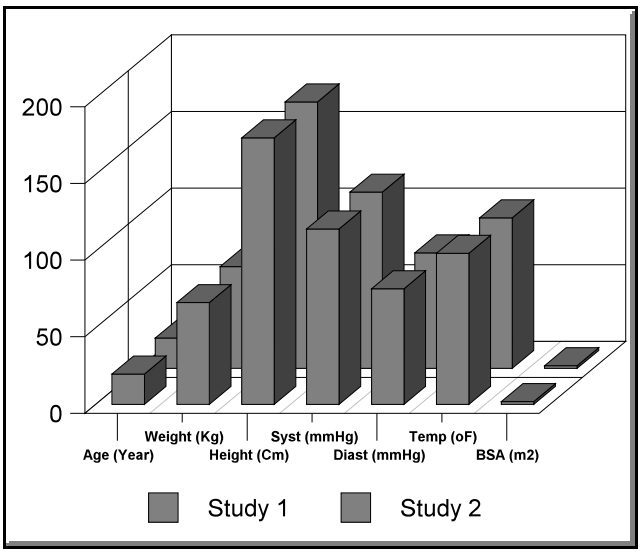

Table 1 Comparison of the biochemical parameters before (study-1) and after (study-2) the intake of Clarithromycin 500 mg.

		Study 1		Study 2		
		Mean	SD	Mean	SD	t-test P Value
Serum Creatinine	(mg/dl)	0.70	0.16	1.11	0.14	0.0000
Random glucose	(md/dl)	85.64	7.63	78.57	4.75	0.0239
Serum Bilirubin (mg/dl)	Total	0.80	0.07	0.82	0.07	0.4033
(mg/dl)	Direct	0.42	0.07	0.39	0.06	0.3396
	Indirect	0.39	0.07	0.43	0.06	0.0802
SGPT	(U/L)	27.71	21.54	29.57	35.05	0.6630
Serum ALK. Phosphate	(U/L)	226.64	49.69	344.00	78.53	0.0000

DISCUSSION

The pharmcoakinetics and toxicity of drugs is affected by a number of factors including geographical variations and difference in racial background. Clarithromycin as one of the recent additions in the group of macrolide derivative antibiotics is expected to show minimum side effects[1]. The adverse effects which are rarely encountered are mild gastrointestinal upset, and headache[2]. It is well absorbed and well tolerated drug which is eliminated from the body through bile and urine[3]. No disturbance in the liver and kidney function has been reported[4]. In our study all the parameters of hepatic functions are normal except a significant increase in the activity of serum alkaline phosphatase which has shown a rise from 226 U/L to 334 U/L. Increase in Serum Alkaline phosphatase level is usually interpreted as a result of cholestasis due to any reason[5]. Is it possible to have a significant cholestatic effect after a single dose of clarithromycin? The answer to this question is not easy. To ascertain the cause of this phenomenon, a large scale study is required on the healthy adult volunteers. Clarithromycin and its derivatives are cleared from the plasma very safely without any ill effect on the renal functions[6]. In our study the increase in creatinine serum level from 0.70 mg/dl to 1.11 mg/dl is significant. However this rise is within the normal range[6]. It only warns that prolonged use of clarithromycin may have some deteriorating effect on the renal function. However, this possibility has to be explored further before any solid conclusions are drawn from this observation.

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The reward of a thing well done
is to have done it.

Ralph Waldo