Sudan University of Science and Technology.

College of graduate studies.

Treatment of Pseudofolliculitis with a diode laser 810 nm.

By:

Dr. Nagi Zarif Malati. Membership of dermatology. M.B.B.S Khartoum University.

Supervisors:

Prof. Dr. Nafie A.Al-Muslet. Dr. Yousif Ahmed Safi-Eldin.

July 2007.

## Index

Ackno	wledgment	3
Abstrac	t	4
Chapte		Concepts
The	Introduction	5
1.1	Laser characteristics	8
1.2	Laser construction	10
1.3	Laser light delivery	
1.4	Terminology	14
1.5	Laser tissue interaction	15
	Photo thermal interactions	18
1.6.1	Selective photothermolysis	20
1.6.2	Classification of lasers	22
1./	Classification of lasers	
1.8	Warning sings for laser equipment	23
1.0	Environmental consideration for the safe use	
2. 4 7	Of laser in dermatology	23
	OI Idool III dellinated	
1.10	Ocular hazards	24
1.11	Hazards of the laser plume	25
	Core of knowledge	26
1.13	Pseudofolliculitis barbae	28
	Objective of the study	30
1.1		
2 Char	oter two:	
	Materials & methods	33
2.1	Patients	33
2.2	Diode laser 810 nm	34
2.3	Methodology	36

## 3. Chapter three:

3.1	Results	40
3.2	Discussion	45
	Conclusion	49
	References	50

## ABSTRACT

teach

derm

Did VI

Pseudofolliculitis barbae, commonly known as shaving bumps, is an inflammatory condition, wide spread among individuals with thick curly hair, and treatment options are limited. As the hair grows out of the skin, it curls and re-enters the skin. The skin reacts to it as a foreign object and becomes inflamed and irritated, creating bumps (papules and pustule) and discolouration. Often hairs start curling even before growing out of the skin, creating ingrown hairs. These bumps become quite large causing discomfort for the patient. More commonly thought, the ingrown hair is pulled out after each shaving session, although this is a solution, it can be painful, time consuming and most of the time it fails. That is why the ideal solution is the hair removal by the use of laser which is targeting hair follicles without damage to the surrounding tissues (selective Photothermolysis). The laser beam passes through the skin and is absorbed in the hair follicle residing underneath the skin surface. The laser energy destroys the follicle with the heat that is generates. Destroyed hairs are then either dissolved within the skin or ejected by the body. Laser treatment impairs the growth of hair follicles only when they are in the growing face (anagen phase) of hair growth cycle at the time of treatment. Unfortunately not all the hair follicles are actively growing when laser treatment applied, so that multiple sessions, spaced a few weeks apart, may be required to obtain the overall desired effect. Diode laser 810 nm (mode S.PPR) at energy 20 watt, and frequency 10,000Hz 1:5 was used in the treatment of six patients with long standing pseudofolliculitis barbae and having skin photo types IV TO VI. Three treatments were performed at 1- to 2-week intervals, and subjects underwent evaluation for clinical improvement in the pseudofolliculitis indicated by disappearance of papules and pustules. All patients were uniformly satisfied with their laser treatment and noted improvement after just one treatment session. At the last follow-up visit, all patients reported greater than 75 % improvement in the papules and pustules formation without any side effects. Therefore diode laser, wave length 810 nm, is a safe and effective method for treatment of pseudofolliculitis barbae in patient with skin photo types IV to VI