Ultraviolet A Is AnEfficient Therapy For Plane Warts

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Abstract

Background: Treatment ofplane warts presents a special therapeutic problem because their duration is long, and very resistant to many treatments. In addition they are usually located in cosmetically important areas, so therapy should be as mild as possible, and potential scarring should be avoided. Ultraviolet a radiation refers to electromagnetic radiation with wavelength (320-400nm) which penetrate deeper into dermal structures' and carry less energy when compare to UVB.

Objective: To evaluate the efficacy and safety of ultraviolet A in the treatment of plane warts.

Patients and Methods: Open therapeutic study was conducted indepartment of Dermatology, In Baquba Teaching Hospital,Diyala health directorate.A total of 60 patients with plane warts aged from 4 to 29 yearswere enrolled in the study between June 2015 to May 2016,all treated with ultraviolet A light,the treatment continue for 3 sessions/week (every other day) for 4 weeks.

Results: Six patients were healed two weeks from starting of treatment, 35 patients were healed after completion of treatment(4 weeks),four patients healed four weeks after stopping of treatment,15 patient showed no response to UVA in treatment of plane warts.no significant side effects observed other than transient erythema and postinflammatorypigmentary changes.

Conclusion: We conclude that UVA is effective and safe modality treatment for recalcitrant plane warts.

Key words: Plane warts, ultraviolet light.

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Introduction

Warts, or verrucae, are benign proliferation of skin and mucosa result from infection with papilloma viruses (PVs). These viruses produce slowly focal expansion of infected cell and do not produce acute signs or symptoms [1] .There are more than 150 types of (PVs), most of them cause specific types of warts and favor certain anatomic location3, 10, 28 and 41 most often cause plane warts[2].

Plane warts (flat warts) are flat toped papules most often 2-4 mm that are slightly erythematous or brown on pale skin and hyperpigmented on darker skin, they are generally grouped [2]. Typical sites of involvement are the forehead, about the mouth, the back of hand, and shaved area such as the beard area in men and lower leg in women. A line of warts may appear as a result of scratching these sites [1]. Primarily affect children and young adults. And their evolutions are variable, tow third of cases regress spontaneously in the course of two years due to immunological mechanisms, but may be long lasting[3]. Although many

therapies were used to treat plane warts, but none is uniformly effectives, these include topical retinoic acid [4]. Ttopical salicylic acid[1].Topical canthidrin[5]. Topical imiquimo[6]. Topical glycolic acid[7]. Glycolic acid plus salicylic acid[8]. Ttopical 5-fluorouracil[9].Topical potassium hydroxide[10].Photodynamic therapy[11]. And immunotherapy with dinitrochlorobenzene,squarcacid, orintralesionalcandida or other antigens[2]. And oral isotrtretion[12].

Phototherapy usually used as a second-line treatment modality for treatment common dermatoses that is safe and effective. Most phototherapy regimens denote the use of different wavelength of ultraviolet (UV) radiation in the treatment of several dermatoses[13].

Ultraviolet radiation refers to electromagnetic radiation with wavelength betweenvisible light and longer than x-ray, it is further divided according to wavelength into UVC (200-280nm), UVB (280-320nm)and UVA(320-400nm).The most important characteristic of UV that separates it from the visible light is that UV light can react chemically with molecules and ionized their[14].UVA penetrate deeper into dermal structures' and carry less energy when compare to UVB [13].The effect of UVA radiationreach mid and deep dermal components[15].It's react andaltersthe critical biomolecules such as DNA has been widely attributed to its ability to generate reactive oxygen species via other chromophoresand UVA has a specific ability to generatecyclobutane pyrimidine dimers[16]. UVA phototherapy is now being used in the treatment of many dermatological diseases such asatopic dermatitis,morphea,lupus and some other recalcitrant dermatoses[17] [18].

This study aim to evaluate the treatment response rate of UVA phototherapy for plane warts and adverse effects.

Patients and Methods

An opened therapeutic study conducted at the department of dermatology in Baquba teaching hospital from June 2015 to May 2016.Sixty patients age from 4 to 29 years old, fifteen were males and 45 were females with plane warts were enrolled in this study. A full history was taken from each patient and exclude any patient who are receiving any treatment for warst in the last 2 months, and any patient receiving any steroid or immune suppressed drugs. Physical examination was done to determine the number, location of warts.

We explained the nature and course of the disease to the patients or to their parents then explained the therapy duration, and possible side effects in addition to take photograph at each visit. In addition, formal consent taken from each one prior to his inclusion in this study.

Irradiation equipment:

For UVA1 therapyElectromedicarinsa . (08150 PreisdolVallesBarcelona Spain) was used. Circular lamp emits infra-red, while the straight one emits UV radiation in range of 320 – 400 nm.

Treatment schedule

The patients were treated with 22 Joule/cm, the distance of the patient from equipment was 15 cm,andthey must protect their eyes with goggles.The treatment continues for 3 sessions/week (every other day) for4 weeks.

First session lasts one minute, if there is no prominent erythema and burning sensation occur, time is increased one minute for each consequent session.

All patients reexamined at the end of second, fourth, sixth and eighth sessions to evaluate the response to therapy depending on clinical examination, photograph at each session and self-satisfaction. Response either complete when there is complete disappearance of warts or no response when there is partial or no change, And record any possible side effects(erythema,exfoliation,itching).

All patients with complete responseand with no response followed up monthly for three months to record any relapse or response.

Statistical analysis

Descriptive and analytically statistics were done by graph pad software,chi square was used to
compare the result .P value of less than 0.00001 was considered to be statistically significant.

Results

Sixty patients completed the study ranging in age from 4years to29years with a mean ±SD 13.3±7.4, 50% of the patients with age less than 10years,33%of patients their ages between11years and 20years the remainder 17%their ages between 21years and29 years as show in figure(1).

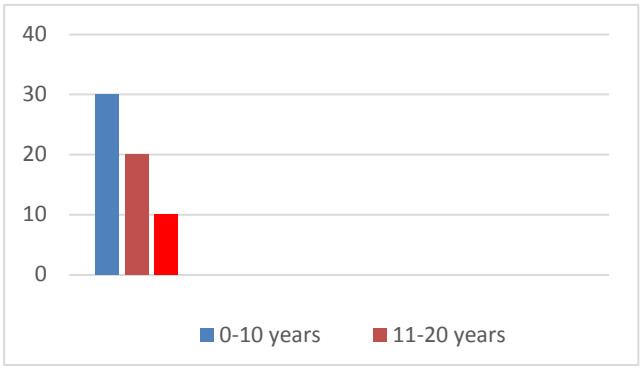


Figure (1): Distribution of studied group according ages.

Fifteen (25%) patients were males and forty-five were females with male:female ratio was 1:3. The duration of warts ranged from 6 months to 30 months with mean 20.2 month .18 (30%) patients had history less than year, and (70%) their duration of warts more than one year as in figure(2).

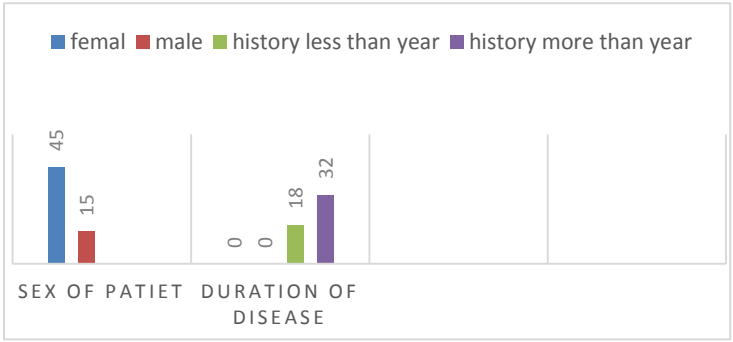


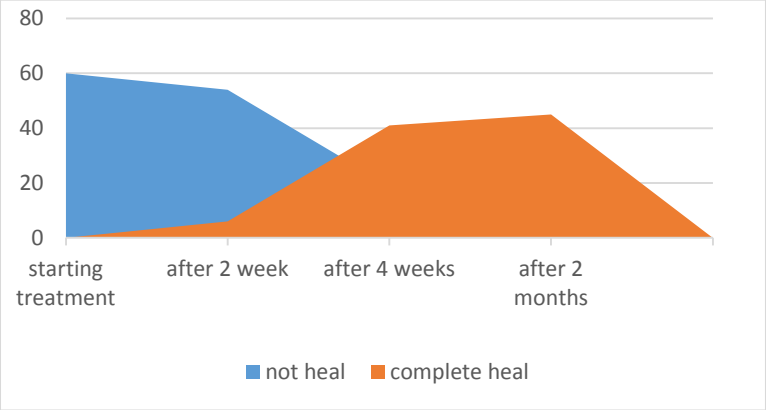
Figure (2): Number of patients according sex and duration of diseases.

After only two weeks 6 patients were completely healed figure(4) other 35 patients complete healed after (four weeks) as in figure(5, 6,) ,as show in table(1) four patients healed4 weeksafterthe end of treatment(8weeks).after one4 weeks ,therefor number of patients with complete cure are 45 (75%) cure rate as show in figure(3). All 45 patients who had complete response, where still free from disease at the end of three monthsfollow up,the difference was statistically significant ;P value<0.00001.

Table(1): Cure rate with the time.

Duration	Complete heal	No response	Cure rate
After 2 weeks	6	54	10%
After 4 weeks	41	19	68%
After 6 weeks	41	19	68%
After 8 weeks	45	15	75%
After 10 weeks	45	15	75%
After12 weeks	45	15	75%

Fifteen patients showed no response to UVA.Eighteen (30%) patients develop mild to moderate erythema at the site irradiation mostly at second or third weeks after starting treatment which are transient and disappearSpontaneously, some need to diminish the exposure time in the next session .Four patients developed transient post-inflammatory hypopigmentation last 1-2weeks then disappear spontaneously.



Figure(3): Patients response with time.

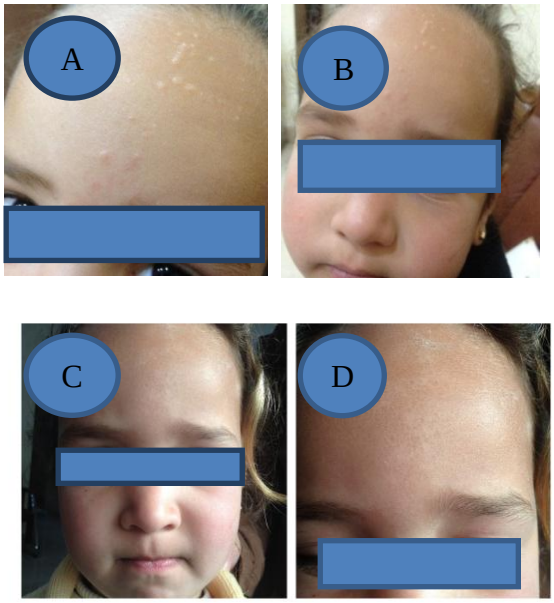


Figure (4):A and B: Five years old child with plane warts for one year duration, **C and D** after fourth session of UVA.

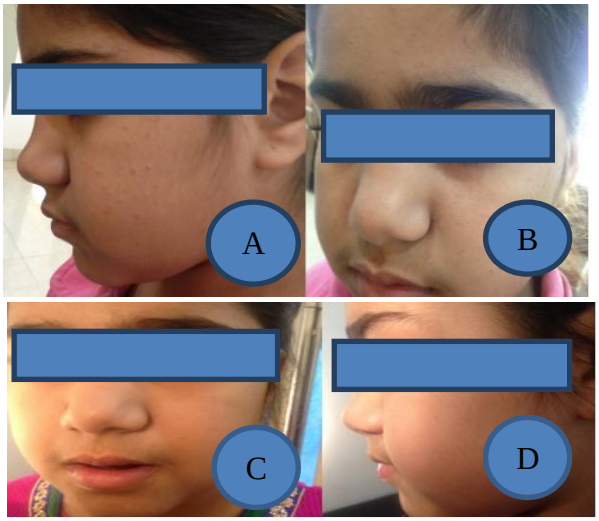


Figure (5):A and B: Ten years old child with plane warts for six months' duration and **C and D**: Same child one month after completing treatment.

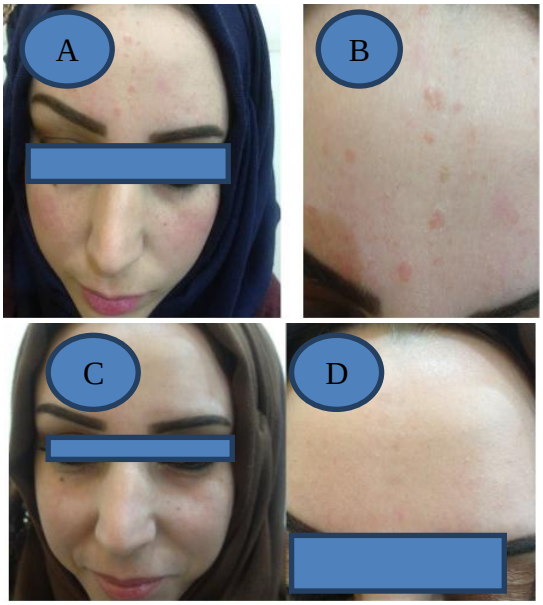


Figure (6): **A and B**:Twenty-six years old female with plane warts for one year duration. **C and D**: After eight weeks from starting of treatment

Discussion

This study is the first study that dealt with use UVA as treatment for plane warts. This study showed that mean age was 13.3 year which go with all other study done in Iraq such as in [1][10]. In other studies done in other country such as in Netherlands [2]. Male: female ratio was 1:3 it doesn't present real ratio but it represent afraid of family from warts as plane wart affect cosmetic area such as face. The duration of warts in this study was 20.2 months which is more than the study done in Baghdad18.7[12] and other study done in Basrah 4.76 months[10]. Because we choose only the patients not response to other modalities of treatments cure rate of UVA is 75% as compared to other modalities of treatments is more safe with less side effect for example 5-FU may cause permanent hyperpigmentation[9]. And relatively the same cure rate as compare with oral isotretinoin which cannot used in small child or married female [1]. Andrelativity same cure rate as compare to use of topical potassium hydroxide[10]. Although treatment in this study require that parents accompany their children to several visit ,resulting in loss of time but are not

expensive, require no special care and monitoring by nursing staff. No important side effect was reported other than erythema and transient post inflammatory changes.

It has been suggested that UV light can produce immunomodulatory affects because ultraviolet light can react withsome components of the human immune system and precipitate an inflammatory response by variety of mechanisms, either directly by activation keratinocytes and other cells to release inflammatory mediators such as cytokines and chemokineswhich activate and recruit leucocytes to the skin or causerelease antigen from sequestered autoantigens from UV-damages cells and redistribution[14]. Overall treatment was well tolerate with no patients had to stop treatment due to adverse effects.

We conclude that UVA is effective and safe modality treatment for recalcitrant plane warts not responded to other modalities and dose not leave any permanent scar or pigmentation. And we recommended use in other type of warts such as common and planter warts.

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