



CODEN [USA]: IAJPBB

ISSN: 2349-7750

## INDO AMERICAN JOURNAL OF PHARMACEUTICAL SCIENCES

<http://doi.org/10.5281/zenodo.3127978>

Available online at: <http://www.iajps.com>

Research Article

### A RESEARCH STUDY TO ASSESS THE ORAL ISOTRETINOIN IMPACTS AND SYMPTOMS SUBSEQUENT TO DIAMOND DERMABRASION

<sup>1</sup>Dr Maheen Safdar, <sup>2</sup>Dr Rasheed Ullah, <sup>3</sup>Zainab Aroosa Sattar

<sup>1</sup>Medical officer, DHQ Teaching Hospital Sahiwal, <sup>2</sup>Hebei North Medical University, <sup>3</sup>THQ Kotli Sattian.

Article Received: March 2019

Accepted: April 2019

Published: May 2019

**Abstract:**

**Background:** Acne vulgaris is treated by topical or potentially fundamental anti-toxins, nutrients and some keratolytic. Microdermabrasion, a modified technique, useful for scar removal is a more natural, gentler and less invasive tool for doing exfoliation

**Objective:** To watch the near impacts of jewel dermabrasion on post acne/fiery terrifying with or without oral Isotretinoin and its likely symptoms.

**Patients and Methods:** This trial was carried out at Services Hospital, Lahore from October 2017 to September 2018. A sum of 232 patients of post acne/provocative startling was arbitrarily selected. In this exploratory examination out of which 159 females were partitioned into two groups, F1 of 80 and F2 of 79 females. The F1 was recommended on Isotretinoin 20 mg/day for 45 progressive days after precious stone dermabrasion performed by NOVA NV60. F2 got no further treatment after the methodology. The guys were separated into M1 and M2, of 37 and 36 in each group individually and were given isotretinoin 20 mg/day in M1 group and no treatment in the M2 group.

**Results:** In female groups, 82.55% experienced non-provocative injuries, erythema in 80%, desquamation in 21.25%, gentle to direct inflammatory lesions in 17.5%, dryness in 88.75%, prurition 32.50% and stinging burning in 13.75% was observed in Group F1. In group F2 these rates were 74.68%, 77.2%, 17.72%, 25%, 79.74%, 43.03%, and 24.05% of similar parameters, individually. F1 were reviewed for advancement, 02 females were of evaluation 0, 13 women got grade 1, 41 patients of Grade 2 and 24 females were of Grade 3. The advancement grades for F2 were, Grade 0 had 11 females, Grade 1 had 27, Grade 2 had 38 while Grade 3 had just 03 females. In male group M1, 78.37% experienced non-provocative injuries, erythema in 83.78%, 29.72% had desquamation, 21% had mellow to direct incendiary sores, dryness in 89.18%, pruritus in 78.37% and stinging/consuming in 16.20% in Group M1. In group M2 these rates were 83.33%, 94.44%, 36.11, 25%, 83.33%, 77% and 27.77% of similar parameters, separately. Advancement grades for M1 were; Grade 0 for 04, Grade 1 for 10, Grade 2 for 16 and Grade 3 for 07. For M2 a similar reviewing framework was pursued and Grade 0 had 02, Grade 1 for 19, Grade 2 were 11 and Grade 3 was 04.

**Conclusion:** The recommendation of the solution of isotretinoin in following Diamond Dermabrasion is because of the amazing epithelial age by the vitamin A simple. This impact gives great and early mending of the rubbed skin. Anyway, further examinations are recommended with a bigger example measure.

**Keywords:** Diamond dermabrasion, Acne, isotretinoin.

**Corresponding author:**

**Dr. Maheen Safdar,**

Medical officer, DHQ Teaching Hospital Sahiwal.

QR code



Please cite this article in press Maheen Safdar et al., A Research Study To Assess The Oral Isotretinoin Impacts And Symptoms Subsequent To Diamond Dermabrasion., Indo Am. J. P. Sci, 2019; 06(05).

**INTRODUCTION:**

Acne vulgaris (or acne) is a typical human skin infection, portrayed by regions of skin with seborrhea, comedones, papules, pustules, knobs and perhaps scarring [1, 2]. Acne influences for the most part skin with the densest populace of sebaceous follicles; these zones incorporate the face, the upper piece of the chest, and the back. Extreme acne is incendiary, yet acne can likewise show in non-fieri fonts [2 – 4]. Acne happens most generally amid pre-adulthood and regularly proceeds into adulthood. In immaturity, acne is typically brought about by an expansion in testosterone, which individuals of the two sexual orientations accumulate amid puberty [3, 6].

Beside scarring, its primary impacts are mental, for example, diminished confidence [7, 8] and as indicated by one investigation, sadness or suicide [9]. Acne generally shows up amid youthfulness, when individuals effectively will, in general, be most socially shaky. Early and forceful treatment is in this manner upheld by some to decrease the general effect on people.

Acne creates because of blockage in follicles. The normally happening to a great extent commensal bacterium *Propionibacterium* acne can cause aggravation, prompting incendiary sores in the Dennis around the microcomedo or someone, which results in redness and may bring about scarring or hyperpigmentation. 10 Hormonal movements, for example, menstrual cycles and pubescence, may add to the arrangement of acne. The inclination to create acne keeps running in families. A family ancestry of acne is related to a before event of acne and an expanded number of retentional acne lesions [11]. Scientific research shows that expanded acne seriousness is essentially connected with expanded feelings of anxiety [12, 13]. A high glycemic load diet and cow's milk have been related to intensifying acne [14]. Major issues over the span of the illness are mental pressure, repeat and scars. The scars are the aftereffect of irritation inside the dermis expedited by acne [14].

The acne can be treated in different ways. Most usually utilized drugs are topical as well as foundational anti-infection agents. Be that as it may, it is suggested that the foundational anti-toxins might be saved for increasingly serious cases [15]. In females, the antiandrogen cyproterone in blend with estrogen is especially compelling at decreasing androgenic hormone levels. A group of prescriptions for normalizing the follicle cell life-cycle are topical retinoids, for example, tretinoin, adapalene and

tazarotene. Isotretinoin has been appeared to be compelling in treating serious acne and can either improve or clear well over 80% of patients. The medication has an any longer impact than against bacterial medicines and will frequently fix acne for good [16]. Some scientists are in support to get mellow moderate acne with just mitigating medications, for example, Naproxen or ibuprofen and nicotinamide [17, 18]. Some strategies may assume a critical job to treat safe or intermittent acne, for example, Dermabrasion [19]. It is a corrective therapeutic strategy in which the outside of the skin is evacuated by the scraped area (sanding). It is utilized to evacuate sun-harmed skin and to expel or decrease scars and dull spots on the skin [20]. Dermabrasion is valuable for scar expulsion when the scar is raised over the encompassing skin, yet is less compelling with depressed scars. Another changed method is Microdermabrasion [21, 22]. It is an increasingly common healthy skin that is a gentler, less obtrusive innovation for completing a peeling on the skin.

A standout amongst the most well-known healthy skin medicines available is precious stone microdermabrasion. Ready to fathom a wide range of sorts of skin concerns, this strategy is simple, effortless and incredibly powerful. Its system of activity is that the skin's surface is disturbed; cell division happens which invigorates fibroblast action prompting collagen generation which prompts thicker, firmer skin [1, 3]. Human skin bogs off at a slower rate with age, so the shedding of a few layers of the stratum corneum leaves skin crisp and radiant.

Precious stone Tips can be normal however generally engineered for lower costs. The erythema is mostly because of flow instead of just disturbance. There is no danger of inward breath particles staying implanted in the skin. There is fluctuated coarseness of jewel wands or tips. The jewel tips can fit some gem microdermabrators. The precious stone tips will in general dull from developing of dead skin amid treatment. 26 Diamond-put together medicines with respect to the next hand produce none of the unsafe residue that outcomes from gems.

These days because of increment mindfulness and learning towards the acne and related issues by the non medicinal individual, an ascent has been watched for the utilization of vitamin A simple and mechanics. However, best outcomes are accomplished yet there is perplexity about the utilization of vitamin A subsidiaries after dermabrasion. There are two distinct suppositions; not to recommend or endorse. Considering this perplexity, we planned an exploration that will assess

the job of vitamin A subsidiary after the dermabrasion. Numerous researchers everywhere throughout the globe are as yet hunting down the equivalent however nobody attempted to survey the utilization of Isotretinoin after Diamond Dermabrasion at any rate in Pakistan. This examination was intended to; decide the impacts of Diamond Dermabrasion on post acne terrifying with or without a course of oral isotretinoin.

### PATIENTS AND METHODS:

This trial was carried out at Services Hospital, Lahore from October 2017 to September 2018. After endorsement from the moral advisory group of Institute, two hundred thirty-two patients of mellow, moderate and serious post acne/provocative frightening independent of age, sex and societal position were selected. Cigarette smokers, heavy drinkers, pregnant and lactating ladies and patients having any fundamental ailment or utilizing any foundational treatment were prohibited.

After an educated assent, a nitty gritty history was taken and physical examination was performed in every patient. Patients were separated by their sexual orientation and age. There were One hundred and fifty-nine females and seventy-three guys. All patients were clinically analyzed. Viability factors included non-incendiary and provocative sores, worldwide evaluation, and worldwide appraisal of progress in post fiery startling. Skin mediocrity factors included erythema, desquamation (scaling), dryness, pruritus, and stinging/consuming.

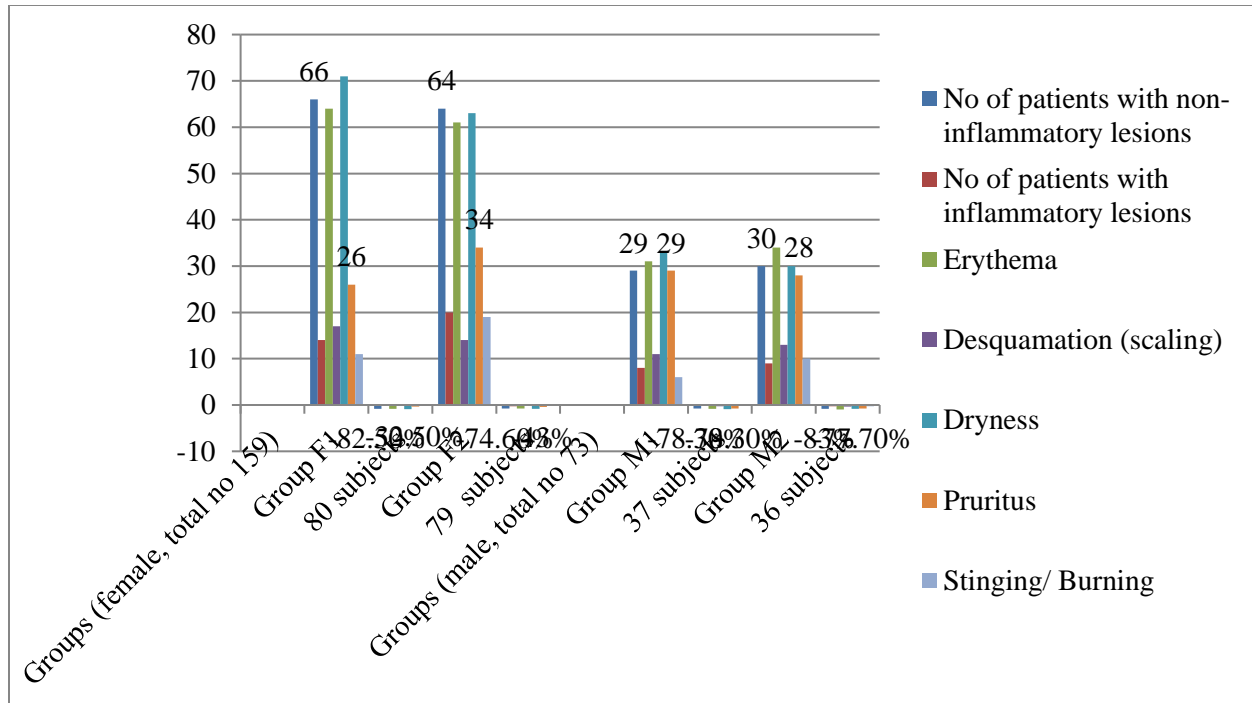
One hundred and fifty-nine females were similarly separated into two groups for example Group F 1 of eighty females and Group F2 of seventy-nine females. The Group F1 was put on Isotretinoin 20 mg/day after Diamond Dermabrasion for forty-five progressive days and seventy-nine of group F2 got no further treatment in any means after the said technique. Similarly, the guys were characterized into two groups, M1 and M2, of thirty-seven and thirty-six in each group, separately. These two groups were treated similarly as the groups of female M1 was given Isotretinoin 20mg/day and M2 was not given any treatment after jewel dermabrasion. The Diamond Dermabrasion was performed by NOVA NV60. The isotretinoin 20 mg in case structure was provided by Mariline Pharmaceuticals, Karachi, Pakistan.

### RESULTS:

A sum of 159 females and 73 male patients were incorporated into this investigation. Table I shows the assessment of patients with or without treatment with Isotretinoin after Diamond Dermabrasion in females and male. There were One hundred and fifty-nine females. These were partitioned into two almost break even with groups. Group F1 involved eighty people and these were handled with Diamond Dermabrasion and afterwards got Isotretinoin 20 mg/day after Diamond Dermabrasion for forty-five progressive days and seventy-nine females of group F2 got no further treatment.

**Table – I:** Evaluation of patients with or without treatment with isotretinoin after Diamond Dermabrasion according to Gender (Male and female)

	No of patients with non-inflammatory lesions	No of patients with inflammatory lesions	Erythema	Desquamation (scaling)	Dryness	Pruritus	Stinging/Burning
<b>Groups (female, total no 159)</b>							
Group F1 80 subjects	66 (82.5%)	14 (17.5%)	64 (80%)	17 (21.25%)	71 (88.7%)	26 (32.5%)	11 (13.7%)
Group F2 79 subjects	64 (74.6%)	20 (25%)	61 (77.2%)	14 (17.7%)	63 (79.7%)	34 (43%)	19 (24%)
<b>Groups (male, total no 73)</b>							
Group M1 37 subjects	29 (78.3%)	8 (21.6%)	31 (83.7%)	11 (29.7%)	33 (89.1%)	29 (78.3%)	6 (16.2%)
Group M2 36 subjects	30 (83%)	9 (25%)	34 (94.4%)	13 (36.1%)	30 (83.3%)	28 (77.7%)	10 (27.7%)



Out of eighty subjects of Group F1 sixty-six (82.55%) gave Non-fiery sores when contrasted with the sixty-four (74.68%) from group F2 of seventy-nine females ensuing as far as possible of the recuperating time frame.

Fourteen (17.5%) ladies of Group F1 created gentle to direct fiery sores after the culmination of the treatment. In group F2 such patients that created mellow to direct fiery injuries were twenty that makes 25%. Erythema created in sixty-four (80.0%) subjects of Group F1 after the treatment while the equivalent was experienced by sixty-one (77.2%)

ladies of Group F2. Desquamation (scaling) was seen in seventeen (21.25%) patients of group F1 while this figure stayed fourteen (17.72%) among the group F2. Seventy-one (88.75%) out of eighty females of group F1 grumbled about dryness and in group F2 this parameter was seen by sixty-three (79.74%) subjects. Pruritus was seen by twenty-six (32.50%) of Group F1 females. In contemporary, thirty-four (43.03%) subjects of Group F2 protested for the equivalent grumble. Stinging/Burning was the issue of eleven (13.75%) ladies of group F1 and nineteen (24.05%) women whined for the comparable issue in group F2.

**Table – II:** Assessment of female patients with (F1) and without (F2) treatment by Isotretinoin after Diamond Dermabrasion among females

Global grade for assessment of improvement in post inflammatory scaring		
	Group F1 (80 subjects)	Group F2 (79 subjects)
Grade 0 (poor)	02(2.5%)	11(13.95%)
Grade 1 (fair)	13(16.25%)	27(34.1%)
Grade 2 (good)	41(51.2%)	38(48%)
Grade 3 (excellent)	24(30%)	03(3.8%)

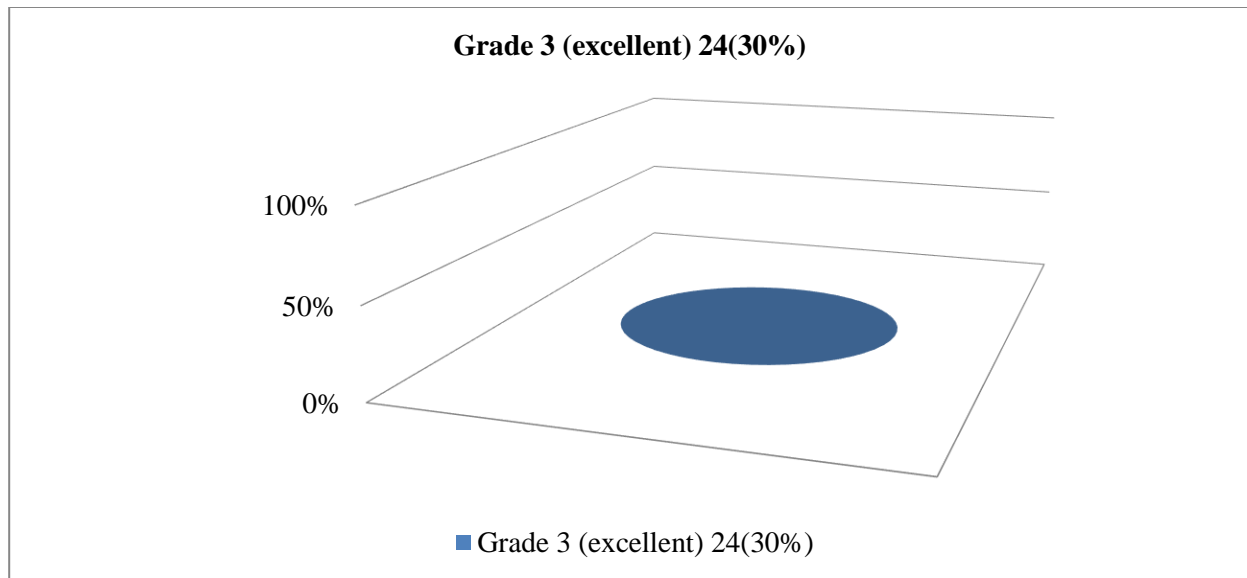


Table II evaluates the advancement in post provocative startling after Diamond Dermabrasion pursued by the treatment with isotretinoin in Group F1 and in group F2 without isotretinoin. Worldwide evaluation framework for the appraisal of progress in post fiery startling was received. Out of eighty most female two (2.5%) showed no outcomes and subsequently remained at evaluation 0. Thirteen ladies (16.2%), indicating sensible improvement, got grade 1. Good anticipation was seen among forty-one (51.2%) patients and consequently, Grade 2 was granted. Twenty four (30%) females were demonstrating extraordinary consequences of Diamond Dermabrasion pursued by the treatment with isotretinoin and were grouped in Grade 3.

Table II additionally demonstrates the improvement in post incendiary startling after Diamond Dermabrasion pursued by no treatment in Group F2. Out of seventy-nine females, eleven (13.9%) hinted at no improvement and in this way were set at evaluation 0. Twenty-seven (34%) ladies, indicating sound advancement, accomplished evaluation 1. The great forecast was seen among thirty eight patients (48%) and subsequently, Grade 2 was allowed. Just three females (3.8%) were demonstrating superb aftereffects of Diamond Dermabrasion pursued by no treatment, hence grouped in Grade 3. Group M1 comprised of thirty-seven people and these were handled with Diamond Dermabrasion and afterwards got Isotretinoin 20 mg/day after Diamond Dermabrasion for forty-five progressive days and thirty-six guys of group M2 got no extra drugs in any

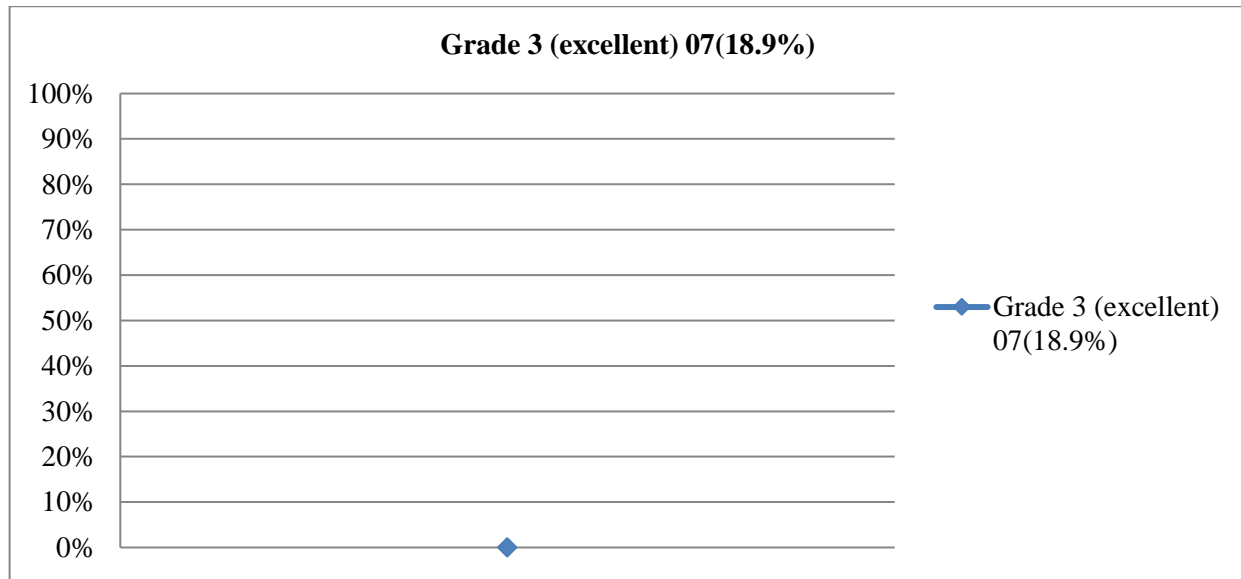
methods, after the said methodology. Out of thirty-seven subjects of Group M1 twenty-nine (78.37%) gave Non-incendiary sores as opposed to those thirty (83.33%) from group M2 of thirty-six guys following as far as possible of the mending time frame. Eight (21.62%) men of Group M1 created gentle to direct fiery injuries toward the finish of the treatment. (Table I).

In group M2 such patients that created mellow to direct fiery sores were nine (25.0%). Erythema created in thirty-one (83.78%) subjects of Group M1 after the treatment while the equivalent was experienced by thirty-four (94.44%) folks of Group M2. Desquamation (scaling) was seen in eleven (29.72%) patients of group M1 while this figure stayed thirteen (36.11%) among the group M2. Thirty-three (89.18%) out of thirty-seven guys of group M1 were disturbed because of dryness and in group M2 this parameter was seen by thirty (83.33%) subjects. Pruritus was seen by twenty-nine (78.37%) of Group M1 guys. In contemporary, twenty-eight (77.77%) subjects of Group M2 protested for the equivalent whine.

Stinging/Burning was the issue of six men (16.20%) of group M1 and ten (27.77%) gentlemen whined for the practically equivalent to inconvenience. (Table I) Table III judges the improvement in post incendiary startling after Diamond Dermabrasion pursued by the treatment with Isotretinoin in Group M1. Global grade framework for the appraisal of progress in post provocative frightening was executed.

**Table – III:** Assessment of patients with and without treatment by isotretinoin after Diamond Dermabrasion among males

The global grade for assessment of improvement in post inflammatory scarring		
	Group M1 (37 subjects)	Group M2 (36 subjects)
Grade 0 (poor)	04(10.8%)	02(5.5%)
Grade 1 (fair)	10(27%)	19(52.7%)
Grade 2 (good)	16(43.2%)	11(30.5%)
Grade 3 (excellent)	07(18.9%)	04(11.4%)



Out of thirty-seven guys, four (10%) uncovered no outcomes and in this way remained at evaluation 0. Ten (27%) people gave sensible improvement, got grade 1. Great anticipation was seen among sixteen patients (43%) and thusly, Grade 2 was granted. Seven guys (19%) were demonstrating fantastic consequences of Diamond Dermabrasion pursued by the treatment with Isotretinoin and grouped in Grade 3.

The progression in post incendiary frightening after Diamond Dermabrasion pursued by no treatment with Isotretinoin in Group M2, demonstrated that out of thirty-six guys, two (5%) were demonstrating no outcomes and accordingly remained at evaluation 0. Nineteen people (52%), gave sensible improvement, acquired evaluation 1. Good anticipation was seen among eleven patients (30%) and consequently, Grade 2 was granted. Four guys (11%) were indicating gigantic consequences of Diamond Dermabrasion pursued by no further treatment with Isotretinoin and grouped in Grade 3.

#### DISCUSSION:

Unequivocally called acne vulgaris, this skin sickness influences a huge number of individuals every year. It can fluctuate from very gentle to incredibly extreme. Acne commonly creates when the sebaceous organs and the covering of the hair follicle start to work in the long run, as they do in puberty. For the most part, the covering of the hair follicle sheds cells that are conveyed to the outside of the skin by the sebum. At the point when the follicle is exhausted and stopped up, cells and sebum collect, framing a fitting (comedo). Around 80 percent of all young people create acne; however, this illness can likewise start as late as the ages 25 or 30, especially for ladies. Nobody is sure with respect to what precisely motivations acne or why it ordinarily starts in youthfulness, yet hormones, fundamentally testosterone, unquestionably assume a substantial job. Various different components, above all heredity, are likewise essential.

As talked about before, there are two kinds of administrations accessible for treating acne; topical medication and oral cures. In spite of the fact that every one of them is useful for treating dynamic acne, yet the issue comes after treatment of dynamic injuries. The post-acne scarring is normal and requires exceptional consideration. Numerous strategies and arrangements are found and many are in pipeline yet the jewel dermabrasion is moderately new and the best strategy, uncovered up to this point. The utilization of oral Isotretinoin in treating dynamic acne is entrenched however its utilization after Diamond dermabrasion is as yet dubious. There are two schools of musings, one is in for and the different stays in against. Our motivation for this investigation was to discover the impacts of Diamond Dermabrasion with or without a course of oral Isotretinoin (20 mg/day after Diamond Dermabrasion for forty-five progressive days). The patients of group F1 exhibited less Non-fieri injuries in a contrast with the F2 Group. It might be because of the calming influence of oral Isotretinoin. This outcome supports the discoveries of Swinehart JM' however not at all like the result of an examination in 2008 by Khunger N, et al. [20]. While watching the erythema, desquamation (scaling) and dryness these were discovered more in Group F1 rather than the Group F2. It is because of the typical reactions of the oral Isotretinoin. Similar impacts were seen by Bagatin E, et al. [21]. However, that was distinguished in the course of ten days of a similar drug, while Lowenstein EB and Lowenstein E. [22] recognized the equivalent following three weeks course of the medication.

Pruritus and stinging/consuming were seen more in Group F2. The Group F1 women were appearing of less tingling and stinging because of calming impacts of the Isotretinoin. This finding seconds the investigation of Lowenstein EB and Lowenstein EJ 22 who found the equivalent yet the medication was utilized for shorter length. Rigopoulos D, et al. [23] contradicts our feeling as it shows stinging/consuming more while oral Isotretinoin was endorsed to the patients of post acne terrifying.

To the extent the guys were concerned; both the groups were exhibiting roughly similar outcomes. It might be because of the men's skin has more collagen and sebum, which makes it thicker and oilier than ladies' skin, therefore no undeniable distinction was noted in Group M1 and M2. This evaluation had additionally been distinguished by McLane J. [24]. Another examination likewise uncovered the equivalent led by Newman MD; however, Zaba R [26] shifted as this they found more bothering

stinging, pruritus in male patients that were treated with oral Isotretinoin for two continuous months.

At the point when the result was assessed of the oral Isotretinoin after Diamond Dermabrasion striking perception was taken note. In Group F1 the evaluation 3 of the Global evaluation for appraisal of progress in post provocative terrifying were twenty-four while the figure was just three in F2 group for a similar evaluation. No or poor outcomes were seen among eleven subjects of evaluation 0 in F2 group, though there were just two females of group F1 that demonstrated no or poor improvement in dying down the post acne terrifying. Around the coordinating discoveries were likewise seen by Jared CJ, et al. [27]. An examination led by Mandy [28] exhibited opposing outcomes yet the quantity of selected subject was less.

Practically closely resembling impact was found in looking at the guys for a similar reason. Seven subjects of Group M1 accompanied great (grade 3) results. Just four of the group M2 displayed nearly similar outcomes for example of evaluation 3. The group M1 exhibited much better outcomes than to the analyzed group M2 while investigating these two groups of guys for evaluation 0. Double the quantity of people indicated poor outcomes, of group M1 as a contrast with the subjects of group M2. The consequences of our investigation seconds the discoveries of an exploration led by Freedman B, however, varies to Gold MH8 who demonstrated no distinction in the result of the oral Isotretinoin after the under dialogue method. The above saw finding not just connoting stamped decline in the side/eventual outcomes of utilizing oral Isotretinoin after jewel dermabrasion but on the other hand is demonstrative that the result of the precious stone dermabrasion is better while endorsing oral Isotretinoin.

### CONCLUSION:

The proposal of medicine for Isotretinoin following Diamond Dermabrasion is because of the amazing epithelial age by the vitamin A simple. This impact gives great and early recuperating of the rubbed skin. It is recommended that further investigations might be led with bigger example measure and improved plan to approve the discoveries.

### REFERENCES:

1. Khunger N; IADVL Task Force. Standard guidelines of care for acne surgery. Indian J Dermatol Venereal Leprol. 2008 Jan;74 Suppl: S28-36.

2. Bagatin E, dos Santos Guadanhim LR, Yarak S, Kamamoto CS, de Almeida FA. Dermabrasion for acne scars during treatment with oral Isotretinoin. *Dermatol Surg.* 2010 Apr;36(4):483-9.
3. Lowenstein EB, Lowenstein EJ. Isotretinoin systemic therapy and the shadow cast upon dermatology's downtrodden hero. *Clin Dermatol.* 2011 Nov- Dec;29(6):652-61.
4. Rigopoulos D, Larios G, Katsambas AD. The role of isotretinoin in acne therapy: why not as first-line therapy? facts and controversies. *Clin Dermatol.* 2010 Jan- Feb;28( 1):24-30.
5. McLane J. Analysis of common side effects of isotretinoin. *J Am Acad Dermatol.* 2001 Nov;45(5): S188-94.
6. Newman MD, Bowe WP, Heughebaert C, Shalita AR. Therapeutic considerations for severe nodular acne. *Am J Clin Dermatol.* 2011 Feb 1;12(1):7-14.
7. Zaba R, Schwartz R, Jarmuda S, Czarnecki-Operacz M, Silny W. Acne fulminans: an explosive systemic form of acne. *J Eur Acad Dermatol Venereol.* 2011 May;25(5):50 1-7.
8. Freedman BM. The topical antioxidant application enhances the effects of facial microdermabrasion. *J Dermatolog Treat.* 2009;20(2):82-7
9. Swinehart JM. Case reports surgical therapy of acne scars in pigmented skin. *J Drugs ennatol.* 2007 Jan;6(1):74-7.
10. Gold MH. Dermabrasion in dermatology. *Am J Clin Dermatol.* 2003;4(7):467-71.
11. Kunachak S, Leelaudomlipi P, Wongwaisayawan S. Dermabrasion: a curative treatment for melasma. *Aesthetic Plast Surg.* 2001 Mar-Apr;25(2): 114-7
12. Basta-Juzbasic A. Current therapeutic approach to acne scars. *Acta Dermatovenerol Croat.* 2010 Sep;18(3):171- 5. Review.
13. Bayerl C, Degitz K, Meigel E, Kerscher M. Adjuvant dermato-cosmetic acne therapy. *J Dtsch Dermatol Ges.* 2010 Mar;8 Suppl1: S89-94
14. Badawi A, Tome MA, Atteya A, Sami N, Morsy IA. Retrospective analysis of non-ablative scar treatment in dark skin types using the sub-millisecond Nd: YAG 1,064nm Laser. *Lasers Surg Med.* 2011 Feb;43(2): 130-6.
15. Emanuele E, Bertona M, Altabas K, Altabas V, Alessandrini G. Anti-inflammatory effects of a topical preparation containing nicotinamide, retinol, and 7-dehydrocholesterol in patients with acne: a gene expression study. *Clin Cosmetol Invest Dermatol.* 2012; 5:33-7.
16. Furue M, Yamazaki S, Jimbow K, Tsuchida T, Amagai M, Tanaka T, Matsunaga K, Muto M, Morita E, Akiyama M, Soma Y, Terui T, Manabe M. Prevalence of dermatological disorders in Japan: a nationwide, cross-sectional, seasonal, multicenter, hospital-based study. *J Dermatol.* 2011 Apr;38(4):310-20.
17. Natural, NazrrogJ.uM, Akkaya VB. Isotretinoin Treatment induces oxidative toxicity in the blood of patients with acne vulgaris: a clinical pilot study. *Cell Biochem Funct.* 2012, Apr 20.
18. Dispenza MC, Wolpert EB, Gilliland KL, Dai JP, Cong Z, Nelson AM, Thiboutot DM. Systemic Isotretinoin Therapy Normalizes Exaggerated TLR-2-Mediated Innate Immune Responses in Acne Patients. *J Invest Dermatol.* 20 12 Apr 19.
19. Cho SI, Chung BY, Choi MG, Baek m, Cho IU, Park CW, LeeCH, Kim HO. Evaluation of the Clinical Efficacy of Fractional Radiofrequency Micro Needle Treatment in Acne Scars and Large Facial Pores. *Dermatol Surg.* 2012 Apr 9.
20. Rao C, Rao R. A cross-sectional study of dermatological problems among differently-abled children. *Indian J Dermatol.* 2012 Jan;57(1):35-7.
21. Pruthi GK, Babu N. Physical and psychosocial impact of acne in adult females. *Indian J Dermatol.* 2012 Jan;57(1):26-9.
22. Jared Christophel J, Elm C, Endrizzi BT, Hilger PA, Zelickson B. A Randomized Controlled Trial of Fractional Laser Therapy and Dermabrasion for Scar Resurfacing. *Dermatol Surg.* 2012 Jan 23.
23. Mandy S. A new "spin" on dermabrasion. *Dermatol Surg.* 2011 Jan;37(1): 128.
24. James J. Leyden and James Q. Del Rosso, Oral Antibiotic Therapy for Acne Vulgaris Pharm. acokinetic and Pharmacodynamic Perspectives. *J Clin Aesthet Dennatol.* 2011 February; 4(2): 4047.
25. Addor FA, Schalke S. Acne in adult women: epidemiological, diagnostic and therapeutic aspects. *A Bras Dermatol.* 2010 Dec;85(6):789-95.
26. Fabbrocini G, Staibano S, De Rosa G, Mattiello V, Fardella N, Allard G, Immacolata La Rotonda M, Longobardi A, Mazzella M, Siano M, Pastore F, De Vita V, Vecchione ML, Ayala F. Resveratrol-containing gel for the treatment of acne vulgaris: a single-blind, vehicle-controlled, pilot study. *Am J Clin Dermatol.* 2011 Apr 1;12(2):133-41.
27. Perle S, Bubanj M, Bubanj S, Jancic S. Side effects assessment in glycolic acid peelings in patients with acne type. *Bosn J Basic Med Sci.* 2011 Feb;11(1):52-7.



28. Kim HS, Lim SH, Song JY, Kim MY, Lee m, Park JG, KimHO, ParkYM. Skin barrier function recovery after diamond microdermabrasion. *Dermatol.* 2009 Oct;36(10):529-33.