

Aquatherapy in Dermatology

Hema Pant^{1,*}, Kritika Pandey²

¹Senior Consultant Dermatologist & Medical Head, Kaya Skin Clinic, Delhi, ²Consultant Dermatologist, Dept. of Dermatology, Fortis Hospital, Noida, Kaya Skin Clinic, New Delhi

***Corresponding Author:**

Email: hemapant.delhi@gmail.com

Introduction

Peeling of skin with a jet stream is a new technology for rejuvenation and cosmetic resurfacing, famous with different names like Jetpeel, Jet-peeling, Aquapeel, Aquapeeling, Aquarejuvenation, Biopeeling, Waterbeam, DIVA (Dermal improvement via aquapressure).⁽¹⁻⁴⁾

This technique is easy to learn, non-invasive and reported as safe and effective for treatment of acne, scars and pigmentation. It is also used for transdermal transfer of medications, antiseptics and anaesthetic solutions. It can be combined with other techniques like chemical peeling, laser treatment and microdermabrasion.⁽¹⁻³⁾

Further studies and investigations are needed to search for the other indications of this technology.

What is Aquatherapy?

Aquatherapy involves projection of high pressure beam of sterile water or saline on to skin by a portable device. Jet spray consists of droplets that strike the skin surface creating mechanical energy for peeling of superficial layers.⁽²⁾ Mechanical stimulation by hyperpressure may also lead to dermal modifications without dermal injury. Histological modifications after aquatherapy have been noted by Davaris M as thickening of epidermis and reappearance of papillary dermal crests.⁽¹⁾

Device:

The device consists of: (Fig. 1)

1. Control panel
2. Source of pressurised oxygen connected to control panel
3. Tubing line accessories
4. A sterile disposable hand piece
5. Sterile water/saline bag
6. A Footswitch
7. Medicine/ antiseptic/ anaesthetic if needed

Technology and peeling technique:^(1,2) The basic technology behind aquatherapy is derived from supersonic flow in nozzles as used in aviation industry. A mixture of sterile water/saline and oxygen passes through an open converging-diverging venturi channel, producing supersonic flow accelerating the solution droplets to high speed and exits through specially designed nozzles as a powerful jet stream. This high-energy micro droplet spray gently exfoliates the skin

creating mechanical energy for peeling of superficial layers.⁽²⁾ (Fig. 2)

After removing the epidermal layer additional layers of the upper papillary dermis can be removed as set by the operator through control panel. Mechanical stimulation by hyperpressure may also lead to dermal modifications without dermal injury.^(1,2)

Procedure:^(2,3) The sterile water/saline bag is connected to the device with sterile tubing. On pressing the footswitch, device produces a spray of liquid mixed with gas delivered via sterile disposable hand piece. The hand piece is held at a 45 to 90 degree angle and at a distance of 2-5 mm from the skin. When the jet is applied to the skin a blanching effect and depression is noticed at the area targeted. (Fig. 2) Advancement of the jet stream is then begun along a line from midline to outwards avoiding eyes and eyelids. Procedure can be combined with chemical peeling, laser treatment or microdermabrasion and can be repeated in two weeks duration.

Post procedure care: Post-procedure care includes avoidance of direct sun exposure, application of sunscreen, avoidance of topical retinoids for 48 hours.

Indications:

⁽¹⁻⁵⁾

1. Facial rejuvenation
2. Treatment of acne, wrinkles, scars, pigmentation
3. Transdermal transfer of medication, antiseptics
4. Combination with chemical peeling, laser treatment, microdermabrasion
5. Patients not willing for chemical peeling or laser (alternative)
6. Primary palmar, plantar and axillary hyperhidrosis with botulinum toxin A (BTX-A)
7. Induction of local anaesthesia with lidocaine
8. Post laser eshar removal
9. Post rhinoplasty intense skin treatment

Contraindications:

^(2,3)

1. Pregnancy/lactation
2. h/o seizure disorder
3. Active infection (herpes, bacterial)
4. Oral isotretinoin in past one year
5. Topical tretinoin in past week
6. Progressive dermatosis
7. Keloidal tendencies
8. Premalignant/malignant skin lesion
9. patient on anticoagulants?

10. vasomotor rhinitis? migraine

Complications:^(2,3,4)

1. Erythema
2. Bruising
3. Pressure urticaria
4. Secondary infection
5. Herpes reactivation
6. Post inflammatory hyperpigmentation
7. Subcutaneous lower eyelid emphysema

Our clinical experience: Procedures like microdermabrasion, chemical peeling, laser toning when combined with aquatherapy gives better results.



Fig. 1: Control panel with source of pressurized oxygen, tubing line accessories, a sterile disposable hand piece, sterile water/saline bag, footswitch



Fig. 2: High-energy micro droplet spray gently exfoliates the skin (note the blanching effect and depression at the area targeted)

and anesthetic delivery by Jet Peel-3 (a high pressure oxygen delivery device). *Minerva Chir.* 2011;66(3 Suppl 1):1-8.

5. Iannitti T, Palmieri B, Aspiro A, Di Cerbo A. A preliminary study of painless and effective transdermal botulinum toxin A delivery by jet nebulization for treatment of primary hyperhidrosis. *Drug Des Devel Ther.* 2014 Jul 14;8:931-5.

References

1. Marc Divaris. Dermal Improvement via Aqua pressure: DIVA protocol. *International Journal of Cosmetic Surgery and Aesthetic Dermatology.* August 2003,5(2):185-191.
2. Golan J, Hai N. Jet Peel: a new technology for facial rejuvenation. *Ann Plast Surg* 2005;54:369-74.
3. http://www.medicamat.com/images/uploads/Dr%20DAVID%20clinical%20studypublication_1.pdf.
4. Iannitti T, Capone S, Palmieri B. Short review on face rejuvenation procedures: focus on preoperative antiseptic