

## Application of Systemic Coolant in Laser Assisted Plastic Surgery and Dermatosurgery Authors

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Sir,

Application of lasers in clinical field has gained significant popularity in India. Lasers are one of the most effective modality in practice related to various cosmetic procedures. Laser was introduced by Maiman in 1960. Various types of lasers used in practice are CO<sub>2</sub> (Carbon Dioxide) Laser, Neodymium Doped Yttrium Aluminium Garnet (Nd: YAG) lasers, Holmium Yttrium Aluminium Garnet (Ho: YAG) laser, Er,Cr: YSGG (Erbium, Chromium doped Yttrium Scandium Gallium Garnet) Laser, Neodymium doped Yttrium Aluminum Perovskite (Nd: YAP) laser, Gallium arsenide (GaAs) laser, Argon came and Diode laser [1].

Various effects of laser are warming, welding, coagulation, protein denaturation, drying, vaporization and carbonization of the tissues. Because of production of significant heat and possibility of damage to surrounding tissues cooling is necessary before and after the application of lasers. Various

studies have shown the importance of cooling system in laser assisted surgical procedures [2,3].

Various methods have been used traditionally for skin cooling like spray method, contact methods using chilled gel/ ice, freeze method, gas technique etc [4] (Figure 1).

We conduct anti aging and regenerative medicine clinic in our department and we use to apply lasers in management of various procedures. An effective pre operative and post operative cooling is must in laser surgery to enhance patient's co operation and to decrease laser induced side effects like erythema, blisters, burning, itching etc. Initially we used traditional methods of skin cooling like ice packs and frozen gel. We found certain disadvantage of these techniques like-

- Cumbersome for the person to hold and apply
- Being a contact method, carries a risk of making the field unsterile
- Starts melting after some times and hence delivers sub optimal cooling
- Difficult to reapply during surgery if previous effect is gone

We started using a systemic coolant "Cryo 6 Skin Cooling System" to serve this purpose (Figure 2). It

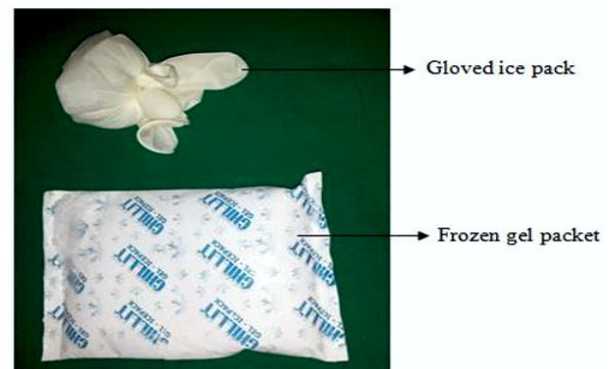


Fig. 1: Materials used in traditional methods of skin cooling



Fig. 2: Systemic skin coolant

works by drawing the room air into the device, filters and cools the air at around minus 32 degree centigrade. Skin cooling can be controlled by changing the flow rate. The cool air reaches at desired spot by a flexible tubing system with an output nozzle.

We found it as an effective technique for skin cooling in laser surgery with following advantages-

- Easy to apply
- No contact hence no risk of infection
- Provides effective cooling in relatively shorter duration
- Provides instant anesthesia to local tissue
- More suitable for intra operative cooling as compared to ice packs
- As it uses room air hence no risk of interaction at tissue interface unlike in gas cooling systems.
- Small size equipment, portable.

Through this article we would like to highlight the use of systemic coolant in laser surgeries. this is an easy and effective technique for skin cooling in laser surgeries.

### References

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