AEDV HIGHLIGHTS
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Laser
Laser and energy based devices for skin of color
Dr. Lim - Australia

Introduction
"The world is getting darker and it’s beautiful" – National Geographic (125th anniversary issue, Oct 2013, prior to the Trump administration).

Globally, the proportion of patients with skin of colour (SOC) seeking dermatological, laser, corrective and cosmetic input is expected to steadily increase. Melasma remains a significant aesthetic concern for many SOC.

The contemporary face of Australia

Skin of colour (SOC) risk profile
SOC is more susceptible to adverse effects from energy-based devices – typically post-inflammatory hyperpigmentation (PIH).1

Lasers & energy-based devices for skin of colour
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Colour-safe devices for SOC
- Nd:YAG lasers: suitable for treating blood vessels (and hair removal)
- Intradermal radiofrequency needling (RF) or motorised external needling: suitable for acne scar repair
- Non-ablative fractional lasers (e.g. 1550nm) with hyaluronic acid fillers: suitable for acne scar repair
- Q-switched/PicoSecond lasers: useful for dyschromia (pseudomonad-induced skin micro-cavitation effective for acne scars)
- Thermal procedures: for skin tightening and body contouring (e.g. radiofrequency, micro-focused ultrasound, cryolipolysis)

Summary
- There is a global trend towards SOC
- Greater variability of PIH response in SOC
- Treat gently, consider stepped algorithm
- Fractional lasers, RF and pico-second lasers may have a role but be prepared to manage PIH

Histological and clinical effect of picosecond fractional laser skin treatments (Dr. Zerbinatti, Dr. Calligaro, Italy)

P1451 Histological and clinical effect of picosecond fractional laser skin treatments
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Introduction
Fractionated laser technique is used from several years in dermatology for the treatment of skin conditions such as photaging, scars and benign pigmentation. Almost all this treatments are made using lasers (pulsed) with photothermal interact with the skin. A new approach to fractional resurfacing, based on picosecond laser is now becoming more popular because of the quality of outcomes and really low risk of side effects.

Methods
Here presented, ex vivo histological evidence of the picosecond interaction with the skin and two clinical cases on acne scarring and photaging.
A Picosecond Nd:YAG Q-Switch Ruby laser emitting at 532, 694 and 1064 nm with a maximum peak power of 1.8 GW has been used to deliver energy through a lens array handpiece to generate the fractionated pattern of 200 μm dots into a spot size of 8 mm. The 1064 nm wavelength at 450 ps pulse width has been used to treat the skin with an energy per dot from 0.8 to 12 mJ and power irradiance from 2.5 to 38 GW/cm² per dot.

Several specimens has been taken after irradiating the previously removed 40 years old female abdomen skin (abdominoplasty) at different energy doses for the ex vivo H&E stain histology study as performance test before performing treatments on patients. By consequence of the performance test, the two cases presented has been treated at the average dose of 11mJ/cm² for 3 passes and 2 monthly sessions.

Discussion
This performance study shows dermal vacuolization probably by local fast photoacoustic expansion with gasses generation (probably not stable in vivo conditions) until about 8 ml per microdot. After this energy threshold, the effect of the fractionated picosecond Nd:YAG laser become more consistently ablative. This probably due to more plasma formation in the skin surface that generates ablation reducing the energy that can reach deeper skin layers.

Conclusion
In conclusion the result of our treatment protocol significantly improved facial wrinkling, brown spots and acne scar. Treatment were well-tolerated with minimal downtime and complications, which may increase patient compliance. Those data supports the positive outcomes, with picosecond laser treatments, reported in the literature. The results of our clinical study further support the use of this technology as a viable treatment option for scars and wrinkle reductions and for improving photaged skin.

Laser and EBD
Conclusions

- It has not been a year of new devices nor big developments.
- **Solid dermatologic indications**
  - The picosecond laser is established as a great alternative in pigmented conditions, and not only in erasing tattoo, but also as a new option to rejuvenation in a fractioned mode (alone or combined), and opening new possibilities in a safe handling of dark phototypes.
  - The concept of “NORMALIZATION” as an effect of lasers and EBD predicts a future based on devices with a much more selective action with minimal aggression and with the aim of normalising the skin in its structure and function.
- The LEAD REGISTRY proposal will help us establish a protocol and indicate correctly the devices in Dermatology.
- **HIFUs** must be in the hands of experts to avoid complications.
- **EADV MADRID 2019** in October will be an excellent forum to provide with our experience.