Cosmetic Dermatology

- Provide sound medical information concerning cosmetic therapies
- Recommend appropriate treatments
Providers of Cosmetic Dermatologic Services

- Esthetician
- Nurse, Nurse Practitioner
- Physician
Cosmetic Dermatologic Services

- Esthetician Services
  - Skin analysis
  - Counseling concerning photoaging, pigmentation, corrective makeup
  - Superficial skin peels
  - Milia, comedo extractions
  - Brow shaping
  - Facials
Cosmetic Dermatologic Services

- Physician/NP/Nurse Services
  - Removal of benign growths for cosmetic purposes
  - Laser therapies
  - Radiofrequency technology
  - Topical treatments
  - Injectable therapies
  - Photodynamic therapy
Removal of Benign Growths

- Freezing with liquid nitrogen
- Electrodesiccation
- Shaving
- Curettage
- Elliptical excision
Cosmetic Lasers

- Light
  - Amplification by the
  - Stimulated
  - Emission of
  - Radiation

- Intense beam of light traveling in a pinpointed direction
Cosmetic Lasers

- Selectively destroy specific targets in the skin, chromophores, by using appropriate
  - Wavelength of light
  - Pulse duration
- Chromophores include water, melanin, tattoo pigments, oxyhemoglobin
Cosmetic Dermatologic Services
Laser Therapies

- Laser resurfacing – improves scars, wrinkles; targeted chromophore = water
  - Ablative – CO2, erbium:YAG
    - 1 treatment yields significant improvement
    - 1-2 weeks downtime
    - Risk of pigmentary alteration, infection, scarring
Cosmetic Dermatologic Services

Laser Therapies

- Laser resurfacing
  - Non-ablative – near infrared (NIR), visible light, intense pulsed light devices
    - Induce collagen remodeling through deep dermal heating
    - Minimal downtime, risk
    - Modest improvement, no epidermal effect
Cosmetic Dermatologic Services
Laser Therapies

- Laser resurfacing
  - Fractional
    - 70-100um wide, 250-1200um deep microthermal zones, allowing partial treatment of any given area
Cosmetic Dermatologic Services

Laser Therapies

- Laser resurfacing
  - Fractional
    - more rapid healing, reduced downtime, lower complication rate
    - 3-5 treatments
    - In addition to resurfacing, FDA approved for coagulation of soft tissue, pigmented lesions, melasma
Laser Resurfacing –
Acne Scars - NIR, 1320 nm

- Targets dermis, stimulates new collagen formation, leading to scar improvement
Cosmetic Dermatologic Services

Laser Therapies

- Laser removal of unwanted
  - Hair
  - Tattoos
  - Pigmented lesions
  - Vascular lesions
Myth or Reality

- Melanin is the chromophore targeted by lasers which remove hair.
Myth or Reality

- Lasers with wavelength 630-1100 nm irradiate pigmented anagen hair follicles, generating sufficient heat to destroy them while preserving surrounding tissue.

- Lasers will not remove grey hair, even if dyed.
Myth or Reality

- Care must be taken in removing hair from Skin Types IV-VI to minimize absorption by melanin in skin and risk of
  - Hypo/hyperpigmentation
  - Blistering, crusting, edema
  - Scarring

- Absorption of melanin by skin is reduced by use of longer wavelength lasers (ex. 1064 nm Nd:YAG) but follicle less effectively heated
Laser/Light Removal of Tattoos

- Targeted chromophore is tattoo pigment
- Pigment is scattered by laser light, stimulating macrophages to remove it
Laser/Light Removal - Pigmented Lesions

Targeted chromophore = melanin
Laser/Light Removal of Vascular Lesions

Targeted chromophore = oxyhemoglobin
Radiofrequency Technology

- Tightens and contours skin without surgery; no downtime

before

after 1 treatment
Radiofrequency Technology

- Electrode applied to surface of skin disperses radiofrequency energy and creates an electric field
- Polarity of the electric field rapidly changes (6 million times/second)
Radiofrequency Technology

- Collagen in lower dermis heated above 60 C degrees
  - Denatures; fibrils immediately contract and thicken
  - Remodels over time in response to thermal injury
Radiofrequency Technology

- One treatment
- Greatest effects at 3-6 months
- Sustained 12-months post treatment
Topical Treatments
Myth or Reality?

- Topical collagen and elastin creams improve facial wrinkles.
Myth or Reality?

- Collagen and elastin molecules are too large to penetrate through the epidermis to the dermis.
Cosmetic Dermatologic Services

- Topical Treatments
  - Sunscreen/sunblock
  - Tretinoin
  - Alpha hydroxy acids
  - Hydroquinone
  - Anti-oxidant vitamins
  - Chemical Peels
Australian Sun Safety Tips

- **Slip** on a shirt
- **Slap** on a hat
- **Slop** on some sunscreen
Ultraviolet Light Protection: Sunscreen

- Broad spectrum coverage
  - UVB – wavelength 290-320 nm; primary cause of sunburn
  - UVA – wavelength 320-400 nm; deeply penetrating, damages collagen and elastin
Ultraviolet Light Protection:

Sunscreen

- **UVB protection**
  - Recommend SPF-15 or higher
  - Ray filtering provided:
    - SPF-15: 93%; SPF-30: 97%; SPF-45: 98%
  - Organic/chemical sunscreens (absorbers):
    - Padimate O, homosalate, octisalate, octioxate, octocrylene, oxybenzone
  - Inorganic/physical sunscreens (sunblock):
    - Titanium dioxide or zinc oxide
  - Studies show little or no effect on blood levels of Vitamin D; advise supplementation
Ultraviolet Light Protection:

Sunscreen

- UVA protection
  - No FDA approved UVA measurement method
- Organic/chemical sunscreens (absorbers):
  - avobenzone (Parsol 1789), photostabilized forms now available - long wave UVA protection, peak 365 nm and up to 400 nm,
  - ecamsule (Mexoryl SX) – short wave UVA protection, peak 345 nm and up to 380 nm
  - Oxybenzone – short wave UVA protection, peak 326 nm and up to 350 nm; common cause photoallergic dermatitis
- Inorganic/physical (sunblock): titanium dioxide or zinc oxide
Tretinoin

- FDA-approved as adjunctive agent along with comprehensive skin care and sun avoidance
- Indicated for mitigation of facial
  - Fine wrinkles
  - Mottled hyperpigmentation
  - Tactile roughness
Tretinoin

- Improvement in first 24 weeks of therapy
- Pregnancy Category C
- Adverse reactions: dryness, peeling, burning, stinging, erythema, pruritus
Alpha hydroxy acids

- In low concentration, such as 2-5% glycolic acid, believed to weaken intercellular cohesion of outermost layers of epidermis
- Uniform exfoliation results
Hydroquinone

- Produces gradual, reversible lightening of skin
  - Inhibits enzymatic and metabolic processes in melanocytes
- Safety during pregnancy, lactation has not been established
- FDA concerned about possible carcinogenicity
  - Damaging to DNA in rodent model and cultures
  - No clinical studies, no cases of cancer reported
Hydroquinone

- Adverse reactions:
  - Contact dermatitis
  - Hyperpigmentation
  - Halo effect
  - Rarely ochronosis
  - Rarely permanent depigmentation

- Banned in Europe, Japan, South Africa because of potential side effects
Anti-oxidant vitamins

- Vitamins C and E
- Evidence of photoprotective effects
- Combination with sunscreen: enhanced reduction of phototoxic damage
Chemical Peel

- Application of chemical agent to destroy epidermal cells +/- to reach dermis
  - Alpha hydroxy acid – ex. glycolic, lactic
  - Beta hydroxy acid – ex. salicylic
  - Alpha-Beta hydroxy acid combination
  - Trichloroacetic acid
  - Jessner’s solution – resorcinol, lactic and salicylic acids
Chemical Peel

- Stimulates
  - new epidermal growth with more evenly distributed melanin
  - skin remodeling and smoothing if dermis wounded
Injectable therapies

- Botulinum toxin
- Fillers for soft tissue augmentation
Facial wrinkle formation

- Ultraviolet light damage
- Repetitive movement of facial muscles
Botulinum toxin

- “Relaxes” facial muscles by blocking acetylcholine release
- Secondarily decreases wrinkling
- FDA approved for moderate to severe glabellar frown lines in adults < 65
  - Onset of action: within 1 week
  - Duration: 3-6 months
Botulinum Toxin

- Side effects
  - Headache
  - Nausea
  - Flu-like syndrome
  - Temporary eyelid ptosis
  - Rare hypersensitivity reactions
Myth or Reality

- The first observation of the beneficial effect of botulinum toxin on wrinkles was made by a Canadian dermatologist.
Myth or Reality

- In 1986, Vancouver ophthalmologist Jean Carruthers noted that patients treated with botulinum toxin for ocular spasm lost their “crow’s feet”.
- Her husband, dermatologist Alastair Carruthers, then started using the toxin for cosmetic purposes.
Fillers for Soft Tissue Augmentation

- Replacement
  - Collagen – bovine, human; 2-6 months
  - Hyaluronic acid – soft; 3-8 months
  - Autologous fat – months-years
  - Silicone – off label; permanent
Fillers for Soft Tissue Augmentation

- Stimulatory – fibroblasts increase collagen production
  - Poly L-lactic acid – FDA approved for HIV-associated lipoatrophy – 1-2 years

- Combination
  - Calcium hydroxylapatite – 9-18 months
  - Polymethylmethacrylate + bovine collagen – permanent
Photodynamic Therapy
ALAN + Light Source

- Aminolevulinic Acid (ALA)
  - Naturally occurring compound
  - Applied to skin, selectively absorbed into rapidly dividing cells in the epidermis
  - Converted to a powerful photosensitizer, protoporphyrin IX
Photodynamic Therapy
ALA + Light Source

- Light Source - skin exposed to either
  - blue light
  - intensified pulse light
  - pulsed dye laser
Photodynamic Therapy
ALA + Light Source

- Light source activates accumulated protoporphyrin, producing singlet oxygen, damaging or destroying targeted epidermal cells.
Indications for Photodynamic Therapy

- Medical
  - Actinic keratoses (FDA approved)
  - Acne
  - Rosacea
Indications for Photodynamic Therapy

- Cosmetic
  - Photoaging – fine lines, blotchy pigmentation, coarse skin texture
  - Sebaceous hyperplasia
Photodynamic Therapy
Aminolevulinic Acid & Blue Light

- After acetone scrub, ALA applied
- 30-60 minute incubation
- Blue light exposure 7-15 minutes
- Avoid sun x 2 days
- 3-6 treatments for optimal results
Cosmetic Dermatologic Services

- Esthetician Services
  - Skin analysis (free seminar)
  - Counseling concerning photoaging, pigmentation, corrective makeup ($45)
  - Superficial skin peels ($45-95)
  - Milia, comedo extractions ($55)
  - Brow shaping (complimentary with counseling)
  - Facials ($60-95)
Cosmetic Dermatologic Services

- Physician/NP/Nurse Services
  - Laser therapies (hair, vascular: $150 base + $1/pulse; resurfacing >$1,000)
  - Radiofrequency technology ($800/unit)
  - Topical treatments (TCA peel $200/layer)
  - Removal of benign growths for cosmetic purposes ($150-500)
  - Injectable therapies (HA $450/1ml syringe, botulinum toxin $300/site)
  - PDT ($999 for 3 treatments)
Cosmetic Services

- For more information about cosmetic services offered at Kaiser in Northern California, visit

  www.kpcosmeticservices.com
Cosmetic Dermatology

- Thrive with an improved appearance
  - Refer your patients for appropriate cosmetic services
  - Treat yourself to a facial or other cosmetic service
Thanks for your attention!