Wood lamp examination

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Contraindications

None. Cover patients' eyes to prevent injury to the retina or conjunctiva.

Applications

Diagnosis of numerous dermatologic disorders as well as porphyrias.

Equipment necessary

Wood lamp.

Set-up

This procedure works best in a completely dark environment, so turn off lights and close any window shades in the room. Allow the Wood lamp to warm up (about 1 minute), and give your eyes time to adapt to the dark.[1]

Procedure

Shine the light directly above the lesion or sample in question. Carefully inspect the area, paying close attention to zones in fluorescence and their borders. Watch out for lint, topical medications, and soap residue! They all fluoresce, creating false positives, usually red-pink.[2] Thankfully, they can generally be removed.

Evidence

While no epidemiologic evidence is currently available, physiologic evidence is well established. A Wood lamp is a mercury arc covered by a Wood filter, which allows a narrow range of light to escape: 320 to 400 nm.[2] The 2 main substances that fluoresce are dermal collagen and porphyrins.

Diagnostic confirmation

- Pigment disorders: biopsy.
- Bacterial infections: culture.
- Fungal infections: potassium hydroxide microscopy, culture.[2]
- Porphyrias: urine testing for porphobilinogen and 5-aminolevulinic acid, genetic testing.[3]

Pigment disorders[1,3]

Hypopigmentation or depigmentation. Lesions demonstrate increased sharpness of borders under Wood lamp examination and fluoresce bright blue-white owing to the increased amount of dermal collagen illuminated. This results from decreased or absent intervening melanin.

Vitiligo: patches, varying in location and extent.

Tuberous sclerosis: patches; characteristic shapes are lanceolate or ash-leaf. Other far-less-specific shapes exist.

Hypomelanosis of Ito: whirled or streaked patterns.

Hyperpigmentation. Lesions demonstrate enhanced border contrast under Wood lamp examination owing to increased absorption of light by increased amounts of melanin.

Melasma. If of epidermal origin, lesions are well demarcated. Dermal melasma demonstrates less colour contrast.

Infections[1,2,4]

Bacterial

Pseudomonas *species:* green in folliculitis and infected burn wounds.

Corynebacterium minutissimum: coral red in erythrasma.

Propionibacterium acnes: orange-red in comedones.

Fungal

Tinea versicolor: *Malassezia furfur* yellowish-white or copper-orange.

Pityrosporum *folliculitis:* Bluish-white in a follicular pattern.

Tinea capitis: Fluoresces in less than 5% of cases in the United States; blue-green (most *Microsporum* species), occasionally dull yellow (*Microsporum gypseum*) and dull blue (*Trichophyton schoenleinii*).

Porphyrias[1,4]

These disorders all cause red-pink fluorescence. However, subtypes vary by which samples fluoresce: red blood cells, urine, teeth, gallstones, or feces.

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References

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