MELASMA
the ultimate patch-test

Although there isn't a single 'cure' for melasma, knowing the contributing causes will help you identify the most appropriate treatment, says **Dr Adam Sheridan**, dermatologist, MBBS FACD FACMS FAAFPS

'MIRROR, MIRROR ON the wall…' it's a common refrain as a new year begins, and an ideal time to soul-search, celebrate past achievements, learn from missed opportunities and chart future objectives. True New Year can also feel a bit like ground-hog day. Certain pesky issues tend to repeat; how to secure that last minute restaurant booking, and where did all the taxis go… just for a start!

In dermatology the perennial challenge of facial melasma presents all too frequently. Placed high on the skin to-do list at the outset of the year, yet still there at year's end. How so?

The key to understanding melasma is the realisation that 'it's complicated'. Melasma is not a simple entity derived from a solitary cause and as such will never respond to a solitary cure. This is self-evident from the broad spectrum of individuals troubled by melasma across the globe, and the existence of innumerable treatments. It is fair to conclude that when so many treatments exist, none work completely!

So, how to approach this challenge? We must first identify the contributing causes to discover the most appropriate treatments.

1. Sun damage:

The cardinal, but certainly not solitary, factor. If sun were the only cause, we could expect every Australian to develop melasma. This is clearly not so. Besides, patients quickly tire of being admonished regarding their lack of sun protection when in fact this group of patients is often far more conscientious with this than most. That said, it is essential to encourage a skin care routine built upon the bedrock of a broad spectrum 50+ sunscreen daily, year in, year out. It is often the damage incurred on an unexpected missed day that sets melasma treatment back many steps.

2. Visible light:

This is a theme that has journeyed to us from countries such as Japan and Korea where it has long been recognised as a major factor driving melasma.

Visible light may account for those patients with limited sunlight exposure, such as office workers in moody Melbourne, who present with recurrent melasma despite care with daily sunscreen.

For now our options are to be aware of the impact of natural light and to become mindful of light exposure emanating from artificial environments, such as computer screens and fluorescent lighting. Iron oxide sunscreens are an option and much research is being ploughed into developing more cosmetically appealing versions of these.

3. Hormonal factors:

The role of hormones is clear from the preponderance of melasma amongst females, especially those of child bearing age and those taking the contraceptive pill.

Furthermore, stress has also been shown to contribute to melasma, and is thought to manifest damage through hormonal drivers. We also know that stress distracts people from healthy lifestyle behaviours, including sunscreen and skincare.

4. Melanocytes and melalin

We now know that melasma finds expression through overactive melanocytes, which produce increased amounts of melalin. Hence 'melasma'.

Many effective treatments for melasma work through reducing the activity of melanocytes and their ability to produce pigment. Examples include hydroquinone, azelaic acid and retinoids.

Certain treatments aim to clear melalin pigment once it has been deposited in the skin. Examples include chemical peels, dermabrasion, IPL and lasers.

5. Keratinocytes and other cells:

To paraphrase John Donne; 'No cell is an island'. We now more fully appreciate that the cells and tissues of the skin operate in concert with each other. Although melanocytes most directly relate to skin pigmentation, keratinocytes, fibroblasts and mast cells all play a role.

One of the most effective of recent advances in therapy has been oral tranexamic acid. This appears to work through multiple pathways, including increased keratinocyte (skin cell) turn over. This increased skin cell turn over encourages shedding and extrusion of abnormally deposited melalin from within the skin layers.

This turnover effect is also how old-fashioned treatment classics such as chemical peels and microdermabrasion work.

6. Inflammation:

Any skin therapist and dermatologist is well aware that inflammation and irritation is anathema for the skin and worsens many conditions, including melasma. The language of inflammation is a chemical mediator released from immune cells such as mast cells. Once released, these stimulate a multitude of cellular activities including melanocyte activity.

Antihistamines have been shown to help through their action upon mast cells, histamine and chemical mediator release.

Any therapeutic approach must remain gentle and soothing to the skin. In many cases, doing less will actually result in a stabilisation and improvement in the condition. In certain cases, what appears to be recurrent melasma is in fact post-inflammatory pigmentation resulting from overly harsh or frequent skin treatments.

7. Vascular factors:

Many readers will have observed vascular changes within areas of melasma. We now know why. Histopathological analysis has demonstrated an increase in blood vessel markers such as VEGF, and dermal blood vessel and mast cell numbers. These are thought to drive increased chemical mediator release and thereby increased melanocyte activity.

Addressing this vascular activity is a further pathway to clearing melasma. This has also long been recognised in Asia where tranexamic acid, vascular laser, IPL and laser 'toning' are employed to good effect.

8. Genetic factors:

Melasma represents a combination of environmental and constitutional factors. Genes determine our body's response to our environment and have been shown to be a major factor in melasma causation. Hopefully this knowledge will lead to ever more specific treatments in the future.

When next you confront melasma, remember that it is a chronic multifactorial condition which necessitates a long term multi-modal therapeutic approach. It is important to convey this to patients such that they are able to set reasonable expectations around the duration and frequency of treatment(s). There is no single silver bullet. ■

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