Contact Lens Discomfort
What is it, why does it occur, and how can it be treated?

Jason J. Nichols (Houston, TX, USA), Lyndon Jones (Waterloo, Ontario, Canada), J. Daniel Nelson (Minneapolis, MN, USA), Fiona Stapleton (Sydney, NSW, Australia), David A. Sullivan (Boston, MA, USA), Mark D.P. Willcox (Sydney, NSW, Australia), on behalf of the participants of the TFOS International Workshop on Contact Lens Discomfort

Introduction

Contact lens discomfort (CLD) is a problem experienced by as many as one-half of all contact lens wearers. However, there is no global consensus concerning the definition, classification, epidemiology, pathophysiology, diagnosis, management and the proper design of clinical studies for CLD.

To achieve such a consensus, the Tear Film & Ocular Surface Society (TFOS; www.tearfilm.org) sponsored an international workshop "The TFOS International Workshop on Contact Lens Discomfort." The workshop involved 79 individuals from around the world, who participated on one of nine subcommittees addressing multiple aspects of CLD.

The purpose of this report is to describe the major findings of this workshop and help translate these findings to the clinical practice and care of the contact lens wearing patient.

What is CLD?

The critical attributes of comfortable contact lens wear include the ability to wear contact lenses without sensation and without problems for as long as desired. Contact lens discomfort is often recognized clinically based on patient symptoms of discomfort and dryness (especially at the end of the day).

The Workshop defined CLD as follows:

Contact lens discomfort (CLD) is a condition characterized by episodic or persistent adverse ocular sensations related to lens wear either with or without visual disturbance, resulting from reduced compatibility between the contact lens and the ocular environment, which can lead to decreased wearing time and discontinuation of contact lens wear.

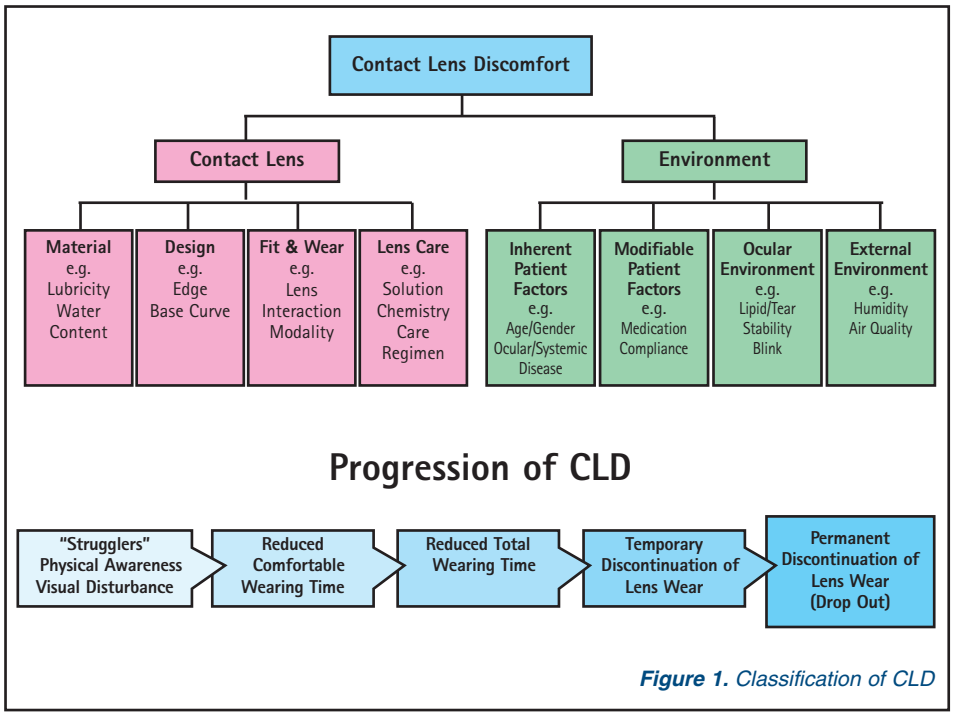

Figure 1. *Classification of CLD*

There are many terms that have been used to describe cessation of lens wear (e.g., discontinuation, dropout, intolerance, lapse). The term "discontinuation" should be used when describing the process of stopping lens wear, while the term "dropout" should be used to describe an individual who has discontinued (or stopped) wearing contact lenses for a sustained period of time. The Workshop determined that the two major classifications used to classify CLD are contact lens related and environmental factors (Figure 1).

How frequent is CLD?

Contact lens discomfort is a frequent problem. Estimates from both population- and clinic-based studies suggest that the frequency of CLD ranges between 31% and 79% of contact lens wearers—as such, it is often stated that about one-half of contact lens wearers have CLD.

Why does CLD occur?

Numerous patient-related non-modifiable and modifiable factors were considered. The evidence did not confirm a patient-related non-modifiable risk factor profile for CLD, although sex (female) and age showed moderate evidence of being related to CLD. Likewise, there was little evidence to suggest a clear patient-related modifiable risk factor profile for CLD.

Other etiological considerations of CLD were also considered, such as the neurobiology of symptoms, the effects of contact lens wear on the ocular surface, adnexa and tear film, and the impact of contact lens materials, designs and lens care. Although the neurobiology associated with the ocular surface is likely critically important in CLD, at present little is known about the role of the nervous system and its response related to CLD. Many of the other ocular surface structures appear to

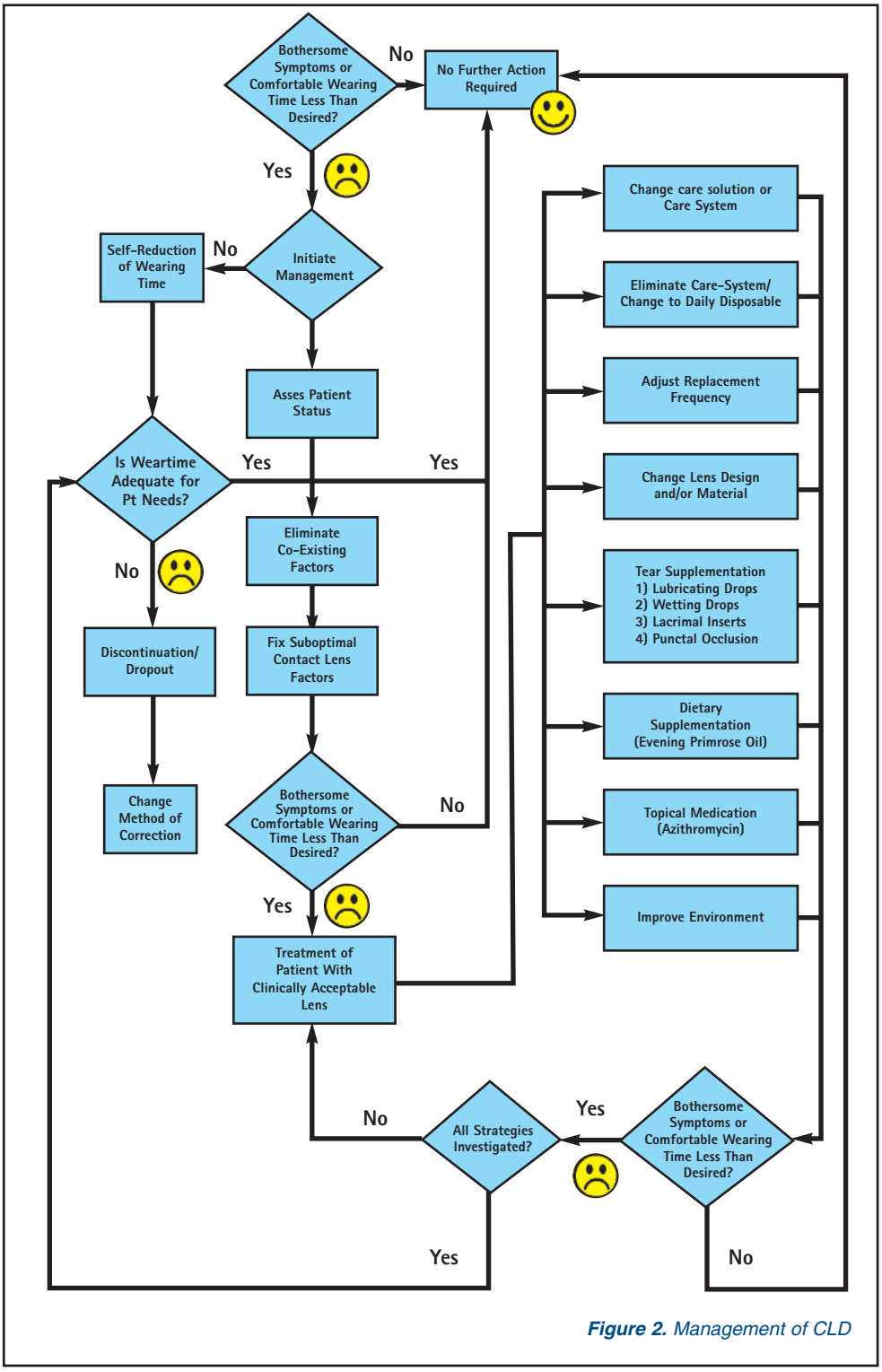

Figure 2. *Management of CLD*

be unchanged in CLD, with the possible exception of loss of or change to the meibomian glands. Meibomian gland loss and/or contact lens wear leads to reduced pre-lens tear film stability and increased evaporation, both of which may be factors involved in CLD.

Many contact lens material, design factors were shown to have little role in CLD. Factors that appear to have some influence on CLD include increased contact lens material water content, low surface friction, poor contact lens fit, contact lens edge profile (thin/sharp better than round), and wearing modality (daily disposable better than reusable). Further, the literature does not give a clear indication of specific care solution formulations or components that are associated with CLD. It remains to be definitively shown whether regular contact lens care, including rubbing, rinsing and adequate soaking (disinfection and cleaning), are important in the prevention of CLD.

How may CLD be treated?

The first consideration in managing CLD is to obtain a detailed history from the patient, followed by the elimination of confounding issues (e.g., identifying and treating non-contact lens related/co-existing systemic and ocular disease) and any obvious contact lens-related problem (e.g., damaged contact lens). Following this, treatments may include changing the contact lens material, changing the modality of wear, changing the care solution/regimen, eliminating the care solution, increasing the replacement frequency, changing the lens design, adding tear supplementation, modifying diet, improving the environment (increased humidity), or the use of topical medications (Figure 2).

Conclusions

Contact lens discomfort is a common problem. Significant progress has been made in identifying important factors characteristic of the condition, as well as those that should be ignored. While the treatment of CLD is multifaceted, it is important that clinicians consider a step-wise approach in diagnosing, managing, and treating CLD in order to maximize the potential for continued successful contact lens wear.

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