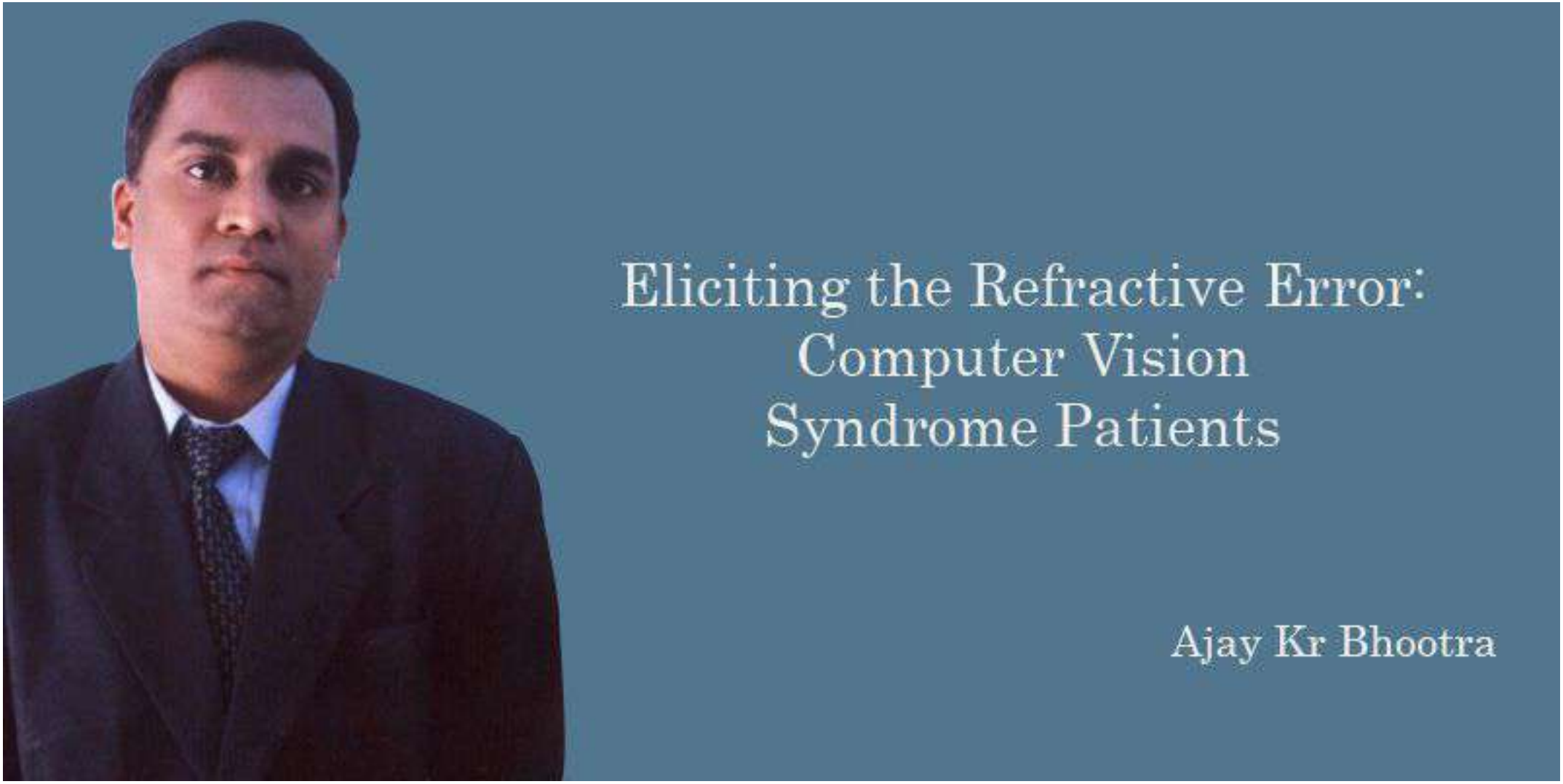
Eliciting the Refractive Error:
Computer Vision
Syndrome Patients
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CVS, by itself is not a diagnostic condition. Instead the term is used to include symptoms which are eyes and environment related

General rule : *First prescribe for any refractive error because improper correction of refractive error:*

- Results in either under or over accommodation
- Results in an unusual demand of either negative or positive fusional vergence.
- Creates an imbalance between the two eyes
- Creates decreased fusional ability as a result of blurred retinal images.

Laws of Computer Vision

- The computer worker fixates at the target and then follows the same. Fixation and Depth perception are, therefore, primary visual skills.

- The elements of visual system controls the performance of visual skills.

- Any deficiency in visual skills will lead to unusual visual postures which is also influenced by visual environment.

- A deficiency in visual skills will lead to symptoms of CVS.

Based upon the aforesaid laws:

Refraction for patients with CVS should aim to correct even the smallest error.

Mechanics of Refraction for CVS patients

1. History Taking
2. Dominant eye test
3. Correction of smallest degree of Refractive error
4. Binocular balancing
5. Refinement with computer screen

History Taking

Important to elicit the critical points of health and visual problem, but is equally important to demonstrate your expertise and to break the barrier between you and the patient.

Relevant questions should be asked.

Dominant Eye Test

Dominant Eye is

- Fixating eye in the binocular vision,
- Aiming at the object, and
- Leading in receiving the visual inputs.

Dominant eye contributes most to the visual perception.

Directional dominance is the sighting dominance, the test of which can be done in many ways.

For example one could make a hole with his hand and binocularly centre an object in that hole.

Rationale

- Some patients are uncomfortable if their dominant eye is fractionally blurred.

- Location of the visual target plays a major role in determining sitting posture.

- Favoring the dominant eye with the most frequently used visual targets may require less eye, head, neck and body movement to view these targets.

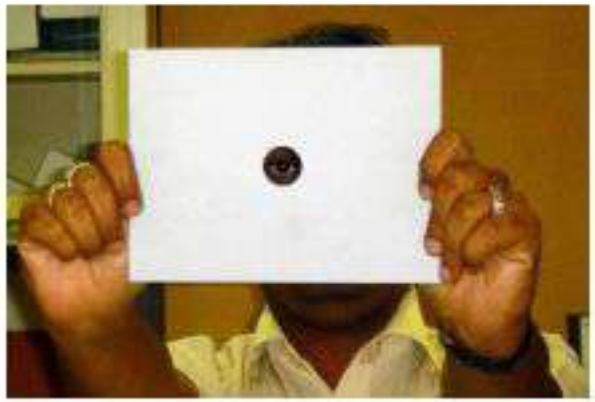
Moreover establishing dominant eye is a vital part of a binocular vision assessment.

This principle should be remembered when determining placement of a monitor and allied attachments

It is, therefore, useful clinically to know the dominant eye.

Methods to Check Dominant Eye

Ask the patient to hold a card with a small hole of 25 mm with both hands stretched out.



Instruct him to view a distant object through the hole with both eyes open.

If binocular vision is present they tend to centre the hole between their eyes.

Smallest degree of Refractive error

Guideline for Significant Refractive Error

Types of Refractive Condition	Significant Amount
Hyperopia	+0.75D or greater
Myopia	-0.50D or greater
Astigmatism	+,- 0.25D or greater

Binocular Balancing

- In a highly visually demanding occupations even a subtle change in the refraction and stimulus to accommodation for two eyes is very critical.

- If balancing is not possible, leave the patient at a point which produces least difference.

- The dominant eye is left with little clearer vision.

Refinement with Computer Screen

The pixilated nature of the letters reduces contrast of the edges of the letters, thereby, necessitates the need for good refractive correction

BEs turn inwards, accommodation is active and pupil is constricted.

It is, important to verify the suitable correction with computer screen at designated distance

- Standard correction leaves the patient with correction at 6 M and 40cms which may not give them sufficient flexibility.

- Probably, it may be prudent to check the refractive correction at several distances: from the eyes to the middle of the screen or even lower onto the keyboard or to the source document, depending upon the respective use of the distance more often.

Presbyopia

- Presbyopia is a problem of reduced vision at various reading distances.

- Patient who is working on computer also notices blur vision at the computer monitor usually kept at 50 to 70 cms.

Determination of Addition Required

Two step procedure.

- First step: Determine the correct near addition at usual near working distance of 40 cms .

- Second Step: Refine it to achieve the correct addition required for computer display.

In order to determine the correct addition required for computer display, it is useful to know how far the computer display is from the eyes and also how far the other near work is from the patient's eyes.

Sum Up

- First consideration for all patients with vision related problem.
- More important issue with people working with computers.
- Good refraction for them is critical to provide them a stress free visual performance & to ensure the stress free working of all other aspects of visual system.

- Even the small refractive errors can cause blur and results in symptoms.

- This can be particularly true for low amounts of astigmatism, or low amounts of hyperopia,

- Patients with low to moderate amounts of myopia who remove their glasses for near work may be at risks for postural problems

That's all....