

Idiopathic Parkinson's disease (Pd) is a progressive neurological condition which is characterised by motor (movement) and non-motor symptoms. Pd results from a reduction of dopamine in the pathways of the brain and substantia nigra.

Pd does not result in loss of vision but visual changes may occur due to eye movement impairment. These may become more obvious as the condition progresses.

Bradykinesia (slowness of movement) caused by Pd may result in the following visual changes:

- Reduced eye blink rate and dry eyes
- Double vision
- Blurred vision
- Blepharospasm (involuntary closure of the eyelids)

Reduced Eye Blink Rate and Dry Eyes

Blinking cleanses the eyes by removing dust and impurities. When blink rate is reduced these impurities can build up. People with Parkinson's (PWP) will blink less frequently, causing irritated and dry eyes. Often a reduced blink rate will lead to excessive watering of the eyes as the tears are not distributed by blinking. Conscious attention to blinking will assist. Artificial tears in the form of eye drops can help dry eyes. Avoiding smoky atmospheres is important.

Double Vision

Double vision in Pd may be caused by problems moving the eyes or tracking. Tracking refers to the eye movement from side to side (for example, reading). Impaired coordination and fatigue of the muscles that move the eyes can result in non-alignment of movement. Resting the eyes when this occurs should provide relief.

Blurred Vision

Blurred vision in Pd can be caused by difficulty in moving the eyes but it may also be a side effect of Pd medications. Modifying reading glasses may improve blurred vision.



Blepharospasm

Blepharospasm occurs when the muscle that closes the eyelid contracts or goes into spasm. This may result in repeated twitching of the eyelid, difficulty in keeping the eyelid open and sometimes complete closure of the eyelid which interferes with vision. The latter may be helped by an injection of botulinum toxin into the eyelid. This will need to be repeated on a needs basis.

Impaired electrical signals and feedback in the brain due to Pd may result in the following visual changes:

- Colour and contrast vision changes
- Perception of movement
- Visuo-spatial orientation
- Illusions (visual misinterpretations) and hallucinations



Colour and Contrast Vision Changes

PWP may find it difficult to discriminate between small differences in colour. This problem may be worse for shades of blue or blue/green. Contrast visual changes are associated with difficulty in low light levels. PWP may be unable to clearly see a light coloured object on a light background.

Perception of Movement

Some PWP do not perceive movements accurately and underestimate the speed of moving objects. This is a potential problem when driving or as a pedestrian.

Visuo-spatial Orientation

PWP frequently have difficulty assessing accurately the distance between objects. They may experience problems in negotiating a narrow space or walking past objects.

Reaching out to touch the side of a doorway or other objects may be helpful. An occupational therapist will give advice about everyday activities and adapting the environment. Problems with visuo-spatial orientation will impact on driving.

Illusions and Hallucinations

Illusions and hallucinations can be associated with Pd and Pd medications. Older people and those with memory problems are more sensitive to this drug side effect. It is more common in those who have had Pd for a long time. The sudden onset of illusions or hallucinations may be related to an infection or other illness (delirium).

Glaucoma and Parkinson's

In the past some commonly used anticholinergic Pd medications (for example Artane[®]) would have been avoided in cases of glaucoma. This is now rarely used and levodopa will not impact on glaucoma.

Some eye drops used in the treatment of glaucoma may cause a lowering in blood pressure and care should be taken if falls are a risk.

Impact and Ongoing Monitoring

Visual changes may increase the risk of falls, impair mobility or cause difficulty with communication. It is important to remember that many problems with vision will not be related to Pd. If eyesight changes occur these should be discussed with your GP. Consulting an optician with expertise in neurological conditions is recommended.

A neurologist will include a routine visual assessment as part of a neurological examination.

References

Information sheet of Parkinson Australia- April 2009

