Management of Acquired Binocular Vision Disorders in the Adult Population

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I. Demographics of Systemic Disease and Trauma Associated with Binocular Vision Disorders

II. Mild Traumatic Brain Injury (mTBI)
   a. History – Importance of developing rapport with patient, Glasgow Coma Scale score, specific complaints, date of injury
   b. Common medications – only off label, no medications specifically for mTBI. Use of stimulants (methylphenidate, dextro-amphetamine, amantidine, bromocriptine, and l-dopa/carbidopa) and anti depressants (serotonin reuptake inhibitors) are common.
   c. Key exam findings – Visual Acuity, refraction techniques, cover test distance and near, NPC, accommodative testing, eye movements, phorometric measures, vergence ranges, fixation disparity, stereo acuity
   d. Diagnosis – common findings of convergence insufficiency, accommodative disorders, and cranial nerve palsy IV
   e. Treatment – use of prism and training
   f. Functional management – use of large print, auditory information, positioning of materials
   g. Special considerations – PTSD, cognitive impairment, light sensitivity
III. Moderate to Severe Traumatic Brain Injury/Cerebral Vascular Accident
   a. History – Date of event, communication with patient, physical complications
      i. Medications – anti-depressants for sleep/wake cycle regulation (trazodone), anti-convulsants, stimulants (amantidine)
   b. Key exam findings – matching or preferential viewing methods of VA, Cover test or Hirschberg/Krimsky, eye movements, alignment in fields of gaze
   c. Diagnosis – common findings include Cranial Nerve Palsies III - VII
   d. Treatment – occlusion, Fresnel prism, gross tracking, Botox injections
   e. Functional management – placement of materials, options for occlusion, gross tracking

IV. Parkinson’s Disease
   a. History – Slowed verbal and cognitive responses
      i. Medications and implications re: manifestation of symptoms – common medications - Dopamine replacement, Dopamine Agonists, MAO Inhibitors, COMT Inhibitors, Anti-cholinergics, and Amantidine
   b. Key exam findings – Visual Acuity, Cover test in primary and downgaze at near, eye movements, pupil size, visual field assessment and effect of Parkinson’s on response to stimuli, vergence ranges, blink rate, contrast sensitivity, biomicroscopic evaluation
   c. Diagnosis - Progressive supernuclear palsy, convergence insufficiency, reduced vertical eye movements, dry eye
   d. Treatment – prisms, occlusion, filters, dry eye treatment
   e. Functional management – positioning of materials, use of magnification, contrast enhancement,

V. Multiple Sclerosis
a. History – onset of symptoms, current functional implications, reading fatigue, oscillopsia, blurred vision
   i. Medications – Hydroxyzine, teriflunomide, glatiramer acetate, adrenocorticotropic hormone, mitoxantrone, interferon beta-1a, methylprednisone, diazepam
b. Key exam findings – Visual Acuity, cover test, vergence ranges, stereoacuity eye movements, contrast sensitivity, color vision assessment, visual field assessment, dilated evaluation of optic nerve
c. Diagnosis – internuclear ophthalmoplegia, nystagmus, variable binocular vision, optic neuritis
d. Treatment – Use of prisms, occlusion, magnification, contrast enhancement, filters indoors and outdoors
e. Functional Management - magnification, contrast enhancement, filters indoors and outdoors

VI. Myasthenia Gravis
a. History – onset of symptoms, lid changes
   i. Medications – Cholinesterase inhibitors, corticosteroids, immunosuppresants, plasmaphoresis, intravenous immune globulin
b. Exam Sequence – VA distance and near, cover test, vergence ranges, eye movement evaluation, biomicroscopy
c. Diagnosis – Ptosis, convergence insufficiency, exotropia, nystagmus
d. Treatment – Ptosis crutch, occlusion and dry eye treatment
e. Functional Management – use of magnification, lid taping