Diagnoses and management of Herpes Viruses: Zoster vs. Simplex
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Varicella Zoster Virus (VZV) and Herpes Simplex Virus (HSV) are enveloped, double-stranded deoxyribonucleic acid (DNA) viruses that belong to the Herpesviridae family. Herpes Zoster Ophthalmicus (HZO) is a recurrent infection of the varicella-zoster virus which occurs when it involves the ophthalmic division of the trigeminal nerve. It represents 10%-25% of all cases of Herpes Zoster. HZO can lead to devastating ocular and systemic complications and is often first diagnosed by ophthalmic physicians. HSV-1 is commonly associated with orofacial disease while HSV-2 is associated with genital disease. HSV-1 remains a leading cause of unilateral corneal blindness from infectious disease worldwide. This lecture highlights the proper diagnosis, management and follow-up of HZO and HSV induced ocular diseases.

Course Objectives

1. To clarify the signs and symptoms which aide in the differentiation between HZV and HSV.

2. To enhance the ability to formulate a differential diagnosis, work-up protocol and management strategy when presented with Herpes viruses.

3. To enhance the ophthalmic practitioner’s ability to co-manage with other ophthalmic professionals and primary care physicians.

Summary/Outline

I. HZO
   a. Primary infection: Chicken Pox
      i. Pathophysiology
         1. Route of infection
         2. Incubation period
         3. Contagiousness
         4. Symptoms
   b. Reactivation: Herpes Zoster/Shingles
      i. Pathophysiology
      ii. Occurrence Sites
         1. Thoracic dermatomes
         2. Lumbosacral dermatomes
         3. Cranial nerves: Trigeminal and Facial nerve
      iii. Anatomy of Trigeminal Nerve
         1. Ophthalmic division
a. Nasociliary Nerve
2. Maxillary division
3. Mandibular division

iv. Ocular Manifestations
1. Anterior Segment
   a. Keratitis – Pseudodendrites
   b. Decreased corneal sensitivity
   c. Scarred Lid Retraction
   d. Conjunctivitis
   e. Episcleritis
   f. Scleritis
   g. Uveitis
2. Posterior Segment
   a. Retinitis
   b. Choroiditis
   c. Cranial nerve palsy
   d. Glaucoma

v. Non-Ocular Complications: Postherpetic neuralgia
1. Risk factors

vi. Treatment
1. Systemic treatments – medications and timing
2. Prevention
   a. Vaccination for Varicella – Varivax
   b. Vaccination for Herpes Zoster - Zostavax
3. Topical ophthalmic treatments
4. Topical non-opthalmic treatments
5. Postherpetic neuralgia management


II. HSV
a. Differentiate HSV-1 and HSV-2
b. Primary Infection
   i. Pathophysiology
      1. Route of infection
      2. Incubation period
      3. Contagiousness
      4. Symptoms
   c. Reactivation of HSV-1
      i. Spontaneous vs. environmental factors
      ii. Occurrence Sites
   iii. Ocular Manifestations:
      1. Conjunctivitis
      2. Punctate Keratitis
      3. Dendritic Keratitis
      4. Geographic ulcer
      5. Disciform Keratitis
6. Interstitial keratitis
7. Iridocyclitis
8. Retinitis

iv. Herpetic Eye Disease Studies
   1. HEDS I
      a. The efficacy of topical corticosteroids in treating stromal keratitis in conjunction with topical trifluridine (SKN).
      b. The efficacy of oral acyclovir in treating stromal keratitis in conjunction with topical corticosteroids and topical trifluridine (SKS).
      c. The efficacy of oral acyclovir in treating iridocyclitis in conjunction with topical corticosteroids and trifluridine (IRT).
   2. HEDS II
      a. The benefit of early treatment with oral acyclovir in preventing stromal keratitis and iridocyclitis in patients with ulcerative keratitis (EKT).
      b. The benefit of oral acyclovir in preventing recurrent HSV ocular infection (APT).
      c. The external factors on the induction of recurrences of HSV ocular diseases (RFS).

v. Treatment
   1. Topical
   2. Systemic – treatment vs. preventative care