Antiviral medications for Herpes Simplex
(topical and systemic)

Group #7

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Antiviral medications

- Antiviral agents can be used to treat disease (a therapeutic strategy), to prevent infection (a prophylactic strategy), or to prevent disease (a preemptive strategy). [1]
- The effectiveness of antiviral therapy sometimes is limited by the development of antiviral resistance. Antiviral drug resistance has increased in parallel with the expanded use of, and indications for, antiviral therapy. Resistance most commonly occurs in patients with chronic and/or progressive infections who have been exposed to prolonged or repeated courses of therapy. [1]

Importance for the Dental Professional

Both Dental patients and Dental Health Care Professionals (DHCP) can be exposed to pathogenic microorganisms including herpes simplex virus types 1 and 2, and other viruses and bacteria that colonize or infect the oral cavity and respiratory tract. [5]

- These organisms can be transmitted in dental settings through:
  1. Direct contact with blood, oral fluids, or other patient materials;
  2. Indirect contact with contaminated objects (e.g., instruments, equipment, or environmental surfaces);
  3. Contact of conjunctival, nasal, or oral mucosa with droplets (e.g., spatter) containing microorganisms generated from an infected person and propelled a short distance (e.g., by coughing, sneezing, or talking); and
  4. Inhalation of airborne microorganisms that can remain suspended in the air for long periods [5]

Previous CDC recommendations regarding infection control for dentistry focused primarily on the risk of transmission of bloodborne pathogens among DHCP and patients and use of universal precautions to reduce that risk.

- Preventive practices used to reduce blood exposures, particularly percutaneous exposures, include
  - Careful handling of sharp instruments,
  - Use of rubber dams to minimize blood spattering;
  - Handwashing; and
  - Use of protective barriers (e.g., gloves, masks, protective eyewear, and gowns). [5]

Herpes Prevalence

- Herpesviruses have two unique biologic properties: the ability to invade and replicate in the host nervous system and the ability to establish a site of latent infection. [2]
- “Worldwide, 60%–95% of the population is infected by one or more viruses of the herpes viridae family”. [2]
- Cold sores are a common manifestation of HSV infection; symptomatic outbreaks are estimated to affect 20%–40% of adults [2]
    - . Although clinical symptoms are considered mild, frequently recurrent outbreaks are associated with significant morbidity [2]

Diseases and conditions commonly seen in dental practices.

- Clinical presentation of common oral viral infections Herpes simplex virus type 1 (HSV-1):
  - Primary herpetic gingivostomatitis
  - Herpes labialis
- Other clinically presented oral viral infections:
  - Epstein-Barr virus
    - Infectious mononucleosis (glandular fever)
    - Oral hairy leukoplakia (OHL)
  - Varicella-zoster virus
  - Coxsackie virus
    - Herpangina
    - Hand, foot and mouth disease
  - Human papilloma virus
  - Human immunodeficiency virus

Antiviral agents such as Acyclovir do have an important role in the management of primary and secondary HSV-1 infections in immunocompromised patients and acute attacks of herpes zoster. Topical Acyclovir is useful for recurrent herpetic infections, but must be started early in the prodromal phase to have a worthwhile effect. [4]

References

Slides 1-5

1. Kimberlin DW. Antiviral therapy of HSV-1 and -2. Human Herpesviruses: Biology, Therapy, and Immunoprophylaxis. https://www.ncbi.nlm.nih.gov/books/NBK47444/. Published January 1, 1970. Accessed August 4, 2017.

2. Simmons A. Clinical Manifestations and Treatment Considerations of Herpes Simplex Virus Infection | The Journal of Infectious Diseases | Oxford Academic. OUP Academic. https://academic.oup.com/jid/article/186/Supplement_1/S71/838421/Clinical-Manifestations-and-Treatment. Published October 15, 2002. Accessed August 4, 2017.

3. Widener RW, Whitley RJ. Herpes simplex virus. Google Books. https://books.google.com/books?hl=en&lr=&id=ooYpAgAAQBAJ&oi=fnd&pg=PA251&dq=herpes%2Bsimplex%2Bvirus&ots=fzEiejB1N5&sig=-mqGR677nn-97Kg2Os8dLctMjLY#v=onepage&q=herpes%20simplex%20virus&f=false . Published 2014. Accessed August 4, 2017.

4. McCullough, M. and Savage, N. Oral viral infections and the therapeutic use of antiviral agents in dentistry. Australian Dental Journal. http://onlinelibrary.wiley.com/doi/10.1111/j.1834-7819.2005.tb00382.x/epdf. Published October 11, 2011. Accessed August 4, 2017.

5. Centers for Disease Control and Prevention. Guidelines for Infection Control in Dental Health-Care Settings. https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5217a1.htm. Published December 19, 2003. Accessed August 4, 2017.

Photos:

Slide 2 - American Academy of Family Physicians (AAFP): http://www.aafp.org/dam/AAFP/images/ann/2015-February/Antiviral_Flu_Packaging.jpg

Slide 4 - Abreva.com: https://www.abreva.com/about-cold-sores/what-are-cold-sores/?rotation=71700000006661045&banner=58700000279213963&kw=4650353808&google=e_&gclid=EAIaIQobChMI47yOi9q-1QIVDYdpCh1UZwF0EAAYASAAEgLju_D_BwE&gclsrc=aw.ds