

SECTION XXIX. PHARMACY AND PHARMACOTHERAPY

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NOVEL AGENTS FOR TREATMENT OF HERPES SIMPLEX VIRUS

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Increase in viral infections severity leads to progress in antiviral diagnosis and therapeutics. Herpes simplex viruses are highly prevalent among world population. According to estimation of World Health Organization (WHO) in 2016 a total of 491.5 million (95% UI: 430.4 million–610.6 million) individuals 15–49 years of age worldwide were living with Herpes Simplex Virus type 2 (HSV-2) infection (James et al., 2020, p.320). Although at present there are different approved drugs to treat Herpes Simplex Virus type 1 (HSV-1) and HSV-2, observation of some limitations, side effects and antiviral resistance have led to creation of other novel alternatives against HSVs. Acyclovir, Penciclovir, Ganciclovir, Foscarnet and Cidofovir are anti-herpes viral agents currently licensed for use (Wilson et al., 2009, p.562). Chen and co-authors (2017, p.563) in randomized controlled trials demonstrated that Valaciclovir is more effective than acyclovir for treatment of recurrent herpes simplex labialis (HSL), infection of perioral region, that is caused by HSV-1 or, infrequently, HSV-2 (Chen et al., 2017, p.563). Boes and co-authors (2020, p.1) studied efficacy of three different preparations. They suggested Compeed patches that include non-antiviral constituent, Herpatch serum that provides natural barrier for lesion healing and antiviral cream and Zovirax for treatment of HSL. They compared healing time and quality of therapy of these products. They didn't observe significant difference in healing time, but Herpatch serum was considerably more effective than other substances (Boes et al., 2020, p.1). Brincidofovir (CMX001) is one of the in development antiviral agents. Brincidofovir after delivered to target cell increases the level of Cidofovir diphosphate and represents broad spectrum antiviral activity. This drug can be administered orally; it is opposite of Cidofovir that can only be prescribed intravenously. Moreover, Cidofovir may lead to damage of renal proximal tubules. However, investigations in Phase III trial is going on. Valomaciclovir represents therapeutic effect against HSV-1, HSV-2, varicella-zoster virus (VZV) and Epstein-

Barr virus (EBV); resistance mutations to this drug are observed, but the findings are not still published. N-Methanocarbathymidine (N-MCT) is an active agent against HSV-1, HSV-2, EBV and Kaposi's sarcoma-associated herpesvirus (KSHV). Pritelivir (AIC316) is another anti HSV agent affecting helicase-primase complex. This drug is more potent than acyclovir with longer serum half- life. Results of phase II trial have showed efficacy in managing genital HSV-2, although in vitro investigations have testified occurrence of resistance to Pritelivir. Amenamevir (ASP2151) that have been approved in 2017 for treatment of zoster in Japan, is effective for treatment of both HSV and VZV (Poole & James, 2018, p.1290-92). It seems that more research is needed to clarify safety and efficacy of these novel drugs.

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