Micropathology Ltd

Tel 24hrs: +44 (0) 24 - 76 – 323222

Fax / Ans: +44 (0) 24 - 76 - 323333

University of Warwick Science Park, Venture Centre, Sir William Lyons Road, Coventry CV4 7EZ

Website: www.micropathology.com E-mail: info@micropathology.com

Herpes Simplex Virus types 1 and 2.

Herpes simplex virus type 1 (HSV-1) and type 2 (HSV-2), along with Varicella zoster virus (VZV) make up the *Alphaherpesvirinae* subfamily of *herpesviruses* that commonly infect humans.

HSV-1 typically causes herpes labialis (otherwise known as cold sores), and herpes keratitis of the eyes; whilst HSV-2 is often the cause of genital herpes. However, both HSV-1 and HSV-2 can cause disease on the same parts of the body[1]. Herpes infection typically results in the presence of one or more blisters that will eventually break to leave painful sores that can sometimes take over a week to heal.

HSV-1 and HSV-2 are both commonly transmitted through contact with lesions, sores, or fluids from an infected individual, and following primary infection the viruses are transported along the sensory neurons where they reside in a period of latency in the trigeminal and sacral ganglia. Throughout an infected individual's life, these viruses can re-emerge causing recurrent symptomatic episodes, although these outbreaks tend to reduce in severity and frequency over time.

HSV-1 is being increasingly found in genital infections, and this is likely to result from both an increase in age at primary infection as well as changes in sexual behaviour[2]. Oral infection with HSV-1 provides a significant level of protection against subsequent genital infection. In the UK, rates of HSV-1 infection in childhood have decreased, with HSV-1 antibody prevalence in 10-14 year olds dropping from 34 % in 1986-7, to just 24 % in 1994-5[2]. This means that an increasing number of adolescents lack any antibody protection against genital HSV-1 infection when they become sexually active.

HSV-1 is almost always the cause of herpetic eye infections, and can result in conjunctivitis, acute retinal necrosis, uveitis and keratitis[3]. If left untreated these infections can result in serious complications, including blindness. Indeed HSV keratitis is commonly cited as the leading cause of infectious blindness in the developed world[3]. Although far less common, HSV-2 can also affect the eye, particularly in neonates since the virus can be transmitted from an infected mother during birth[4-8].

Other serious complications of HSV infection include disseminated disease, meningitis (more often associated with HSV-2 than HSV-1), and encephalitis (most commonly caused by HSV-1). HSV encephalitis is a relatively rare but very serious condition, and in the absence of effective treatments the mortality rate can be as high as 70 %[9]. Rapid and accurate diagnosis of is therefore essential and PCR is now considered the gold standard for identifying almost all HSV infections, with

remarkably high sensitivity and specificity[10]. At Micropathology Ltd, we use PCR for the rapid detection of HSV in a wide range of patient samples.

The most common treatment for HSV infections is the antiviral drug Acyclovir that is generally very effective. Drug resistance amongst immunocompetent patients is rare (<1 %), but can affect between 2.5-11 % of immunocompromised patients[11]. Micropathology Ltd. offers an additional test to detect acyclovir drug resistance in HSV-1.

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