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Listeria monocytogenes

Listeria monocytogenes is a Gram-positive facultative anaerobe and is the main pathogen in the genus *Listeria* which can cause listeriosis in pregnant women, neonates the immunocompromised (especially if impaired cell mediated immunity) and the elderly. In addition, *L. ivanovii* occasionally causes human disease whereas: *L. innocua, L. welshimeri* and *L. seeligeri* are considered largely non-pathogenic.

Listeriosis disease is mild and self-limiting in healthy individuals (up to 5% of adults carrying this organism in their gut), but can infect the central nervous system leading to sequelae such as meningitis and bacteraemia in susceptible individuals. Transmission is mainly sporadic via contaminated food products (especially in chilled pre-packaged food, pate, soft cheese etc) or contact with animals as *L. monocytogenes* is commonly found in soil and water.

Infection during pregnancy may cause miscarriages, stillbirths, premature labour and severe infection of the new-born and other birth complications via vertical transmission. In early neonatal disease (<5 days post-delivery) symptoms present with septicaemia, have a mortality of 30-60% and result in prominent sequelae, e.g., lung disease or CNS defects in 20-40% of survivors. Late neonatal disease (>5 days post-delivery) often presents as meningitis with a lower mortality rate (~10%) and may be hospital acquired.

In adult infections the main syndromes are meningitis, septicaemia and endocarditis. Rarer manifestations include encephalitis, CNS abscess, arthritis, hepatitis, endophthalmitis, continuous ambulatory peritoneal dialysis CAPD peritonitis, gastroenteritis and pneumonia. The main risk factors include age, immunosuppression due to steroids, cytotoxic therapy and HIV. Mortality is high, particularly in endocarditis and in CNS disease where up to 75% of survivors have some sort of sequelae such as hemiplegia or CNS defects. Thus, invasive listeriosis is a notifiable condition.

Service users may wish to refer samples such as CSF and blood/blood cultures for the detection of *L. monocytogenes* when dealing with high-risk patients, particularly those that have been given prior antibiotics.

Our assay:

At Micropathology Ltd we use a qualitative, nested real-time PCR assay to detect *L. monocytogenes* DNA. CSF and EDTA whole blood samples are UKAS accredited specimen types for this assay. Other sample types may be tested and are reported alongside an appropriate caveat stating that the sample provided is not accredited or validated for this assay. Turnaround times are stated in the user manual (http://www.micropathology.com/customer-downloads-handbooks.php) with results usually available in practice much sooner than the given time frame. Where there is a delay, we are usually confirming a result and addressing clinical data given with the specimen.