Fast way of spotting multidrug resistant bacteria could help stop outbreaks in hospitals

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A type of bacterium widely found on our skin and in the environment has now become a major threat in hospitals where it can cause serious infections, such as pneumonia in severely ill patients. Like the well known bacterium MRSA (methicillin resistant Staphylococcus aureus) the new types of Acinetobacter baumannii are resistant to nearly all antibiotics, so doctors have very few treatments available, and three resistant strains are currently circulating in the UK.

A molecular method designed by the Health Protection Agency has been successfully implemented by medical researchers at the Royal Free Hospital, part of the Royal Free Hampstead NHS Trust, as a quick and accurate means of identifying which strain of the bacterium is infecting a patient, scientists heard today (Wednesday 28 November 2007) at the Federation of Infection Societies Conference 2007 at the University of Cardiff, UK, which runs from 28-30 November 2007.

“Some of these new strains of Acinetobacter baumannii, known as epidemic clones, can spread rapidly and widely between patients and have the potential to cause outbreaks”, says Kerry Williams of the Royal Free Hospital. “We currently encounter two of them at our hospital, so we need a reliable and rapid means of identifying and discriminating between the different clones. We can now get a result from a patient’s sample in just four hours. The test also allows us to predict how likely we are to be facing an outbreak”.

The drug resistant strains of the bacteria are especially dangerous in intensive care units where, as well as causing pneumonia, they can infect wounds or cause urinary tract infections such as cystitis.

“Like MRSA, Acinetobacter baumannii can be found on the skin without actually causing an infection, this is known as colonisation. The new test is important because it means we can rapidly identify patients who are colonised with drug resistant strains of the bacteria so that special infection control measures can be put in place. The patient can quickly be isolated if necessary”, says Miss Williams. “This reduces the risk of transmission to other patients and the possibility of an outbreak occurring. The ability to distinguish between the clones circulating is also important because it allows us to monitor transmission in our hospital”.

Currently all the Royal Free Hospital strains of bacteria are sent to a reference laboratory for typing by a method called pulsed field gel electrophoresis. The new test, called multiplex-PCR, gives results comparable to the ones produced by the reference laboratory.

The multiplex-PCR, based on identifying unique gene sequences in the bacteria, has the potential to be developed as a rapid screening tool for intensive care units in other parts of the country. It should eventually lead to better patient management with faster and more appropriate treatments for individuals and prompt control of infections to reduce the risk of transmission to other patients.

Source: Society for General Microbiology

multidrug-resistant-bacteria-outbreaks.html