Infection alert in catheters could tackle hospital superbugs

Krankenpflege-Journal.com

New early warning system to prevent life-threatening urinary infections in catheter users

Infection alert in catheters could tackle hospital superbugs

Amsterdam (April 25, 2016) - A new infection alert system in catheters could prevent serious infections in millions of patients every year, according to researchers from the University of Bath. The system alerts catheter users to possible infection before it becomes serious. The researchers who invented the new catheter infection alert say it could help tackle these infections. It could also be beneficial for elderly people in care homes.

A catheter drains urine from the bladder when a person can't release urine without help or is incontinent, including due to injury, disease or ageing. Over 500,000 people use catheters in the US alone, according to the Centers for Disease Control and Prevention. The new system designed by Dr. Toby Jenkins and his colleagues provides a means of early detection, so the catheter can be changed and the infection treated before a person becomes unwell.

"Catheter-related infections are a serious problem, especially if the bacteria are resistant to antibiotics. We hope that with this simple to use sensor system we can ultimately make a real difference to patients' lives," said Dr. Jenkins.

Over time bacteria can build a layer called a biofilm inside the catheter tubes that eventually blocks them. The urine becomes acidic and the biofilm grows thicker. The urine then doesn't flow through well, so the bacteria can multiply faster. The bacteria release proteins and enzymes that help them form a biofilm and block the catheter.

The new system works by a coating placed inside the catheter made of a bactericide called Gentamicin. The system was developed following a series of experiments to test the hypothesis.

The researchers used urine that had been collected from patients, mixed in with artificial urine and bacteria from patient samples. This means the coating can work in all catheter types and in all environments. The urine is dyed yellow with a special dye. When the bacteria trigger the detection system, the dye turns bright yellow in the urine bag, showing the infection.

Biofilm build-up happens even if the catheter is clean in itself. The researchers have found bacteria can cause blockages that can lead to infection. To prevent this, the catheter needs to be changed every 48 hours. The infected urine is just one way of triggering the system, but there are others that could be used too.

Dr. Jenkins' team suggests the system could be used to reduce the number of infections caused by catheter blockages. It could also be used to reduce the cost of treatment. A catheter-related infection can cost up to $13,000 in the US alone, according to the Centers for Disease Control and Prevention.

The researchers believe the system could be used in all catheter types and in different environments. The system was tested in a glass bladder and in artificial urine, but the researchers say it could be used in all catheter types and environments. The system is currently under development and is expected to be available within 2 years.

The researchers hope their system could be used in hospitals and care homes, and in all catheter types. It could be used to detect infections early, so the catheter can be changed before problems develop. The researchers say their system could be used in all catheter types and environments.

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