Project could save the eyesight of thousands

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Scientists from the University of Sheffield have partnered with a team in India for a project which could save the eyesight of thousands of people living in the South Asian country.

As in most developing countries, corneal infection in India is a serious problem and many patients are diagnosed too late to save their vision.

The University of Sheffield has received funding from the Wellcome Trust to work with the LV Prasad Eye Institute, in Hyderabad, to develop a new, easy to use technology that will aid in rapid diagnosis and rapid treatment to reduce the number of patients losing their eyesight.

Professor Steve Rimmer, from the University's Department of Chemistry, is leading the Sheffield team. He said: "We are attacking a major problem in India, especially rural India and if successfully introduced into practise we might save the eyesight of thousands of patients."

Along with his colleagues; Professor Ian Douglas, from the University's School of Clinical Dentistry and Professor Sheila MacNeil, from the Department of Materials Science and Engineering, the trio have designed polymers which - on recognition of bacteria - collapse around it trapping the bacteria in place and then allowing it to be removed. The process has been used on eyes allowing bacteria to be removed from the cornea.

Corneal infection is either caused by bacteria or fungi. The new research will now extend the group's work to also recognise fungi. It will work by adding dyes which change colour depending on what is causing the infection so doctors know what treatment to prescribe.

Professor Rimmer added: "Thousands of patients lose their eyes because of late diagnosis in India and the developing world.

"The issues are especially acute in rural areas where access to primary eye care is limited. Lack of facilities also means that when treatment is commenced early clinicians are forced to simply use multiple mixtures of drugs, such as antibiotics and of course this increases the rate at which pathogens develop resistance.

"Once fully developed our system should provide a cost-effective and rapid way of identifying the two classes of bacterial infection or fungal infections.

"The system can be applied without laboratory facilities and results would be obtained within an hour, allowing medical staff to quickly provide the right therapy in the field."

The clinical lead for the project is Dr Prashant Garg, associate director of LV Prasad Eye Institute. The institute is internationally recognised for its pioneering work across many aspects of eye disease and blindness and treats 1,200 new corneal infections every year.

It is hoped the three year project will ultimately lead to a huge reduction in patients losing their eyesight.

This is the second Wellcome funded Affordable Healthcare project for the University of Sheffield with LV Prasad. The first, led by Professor Sheila MacNeil in the UK and Dr Virender Sangwan in India, is developing a biodegradable synthetic membrane for the delivery of stem cell therapy to the eyes of patients who are blinded by damage to the cornea as a result of chemical injury or burns.

Provided by University of Sheffield

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