

By Jo Willey Health Editor

A "MAGIC bullet" breakthrough could spell the end of expensive and unpleasant eye injections to treat blindness, experts reveal today.

Scientists at University College London have found a way to deliver drugs to the back of the eye in simple eye drops.

They say their revolutionary discovery could transform treatment for millions of people suffering from age-related macular degeneration (AMD) and other eye disorders. It would spare patients from having to endure monthly injections directly into the eye to save their sight.

Lead author of the research, Professor Francesca Cordeiro, said: "Eye drops that can be safely and effectively used in patients would be a magic bullet - a huge breakthrough in the treatment of AMD and other debilitating eye disorders.

"The current treatment of injecting drugs into the eye is uncomfortable, detested by patients and often needs repeated monthly injections in hospital for as long as 24 consecutive months. It's impossible to exaggerate the relief patients would feel at not having to experience injections."

The NHS is overwhelmed with patients needing eye injections, and the number is set to soar in the next 10 years because of the increasingly ageing population.

Injections are difficult to administer, time-consuming and very expensive. The treatment also carries a risk of infection and bleeding.

In the UK, 30,500 injections were estimated to have been given in 2008 - a 150-fold increase in 10 years.

Effective delivery of drugs to

# Drugs breakthrough could end misery of painful eye injections

the retina is considered one of the most challenging areas in eye health because of difficulties in getting the treatment to the areas where it would be most effective.

It was thought that drugs used to treat AMD, such as Avastin and Lucentis, have molecules that are too large to be effectively transported in an eye drop.

## Funding

But now the researchers have demonstrated in animal models that it is possible to create formulations of nanoparticles loaded with Avastin and deliver significant concentrations to the back of the eye.

Their findings are published in the nanotechnology journal Small. First author of the study Dr Ben Davis, from UCL's Institute of Ophthalmology, said: "We have shown in experimental models a formulation system to get substances including Avastin across the barriers in the eye and

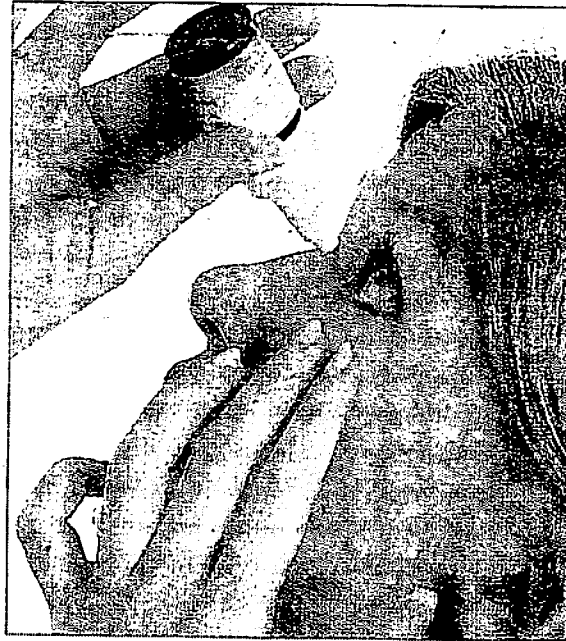
transport them across the cells of the cornea.

"In theory, you could customise the technology for different drugs such as Lucentis as it is a smaller molecule than Avastin so likely to be delivered effectively via this method.

"All the components we used are safe and well-established, meaning we could potentially move quite quickly to get the technology into trials in patients - but the timescales are dependent on funding."

Clara Eaglen, from the Royal National Institute of Blind People, said the discovery could free up capacity in busy eye clinics, adding: "This could revolutionise the way people receive treatment for AMD, the leading cause of sight loss in the UK.

"At the moment patients can become afraid and frightened at the prospect of having a needle in their eye. If in the future they can use eye drops to get the same level of treatment, that can only be a good thing."



Eye drops could replace injections to treat blindness

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