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Ross River virus treatment on the horizon as phase two clinical trials move closer

ABC Mildura-Swan Hill By Kellie Hollingworth and Matt Tribe
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A Melbourne biotech company is hoping to start the second phase of a clinical trial to test if an existing drug can be repurposed to treat Ross River virus.

Paradigm Biopharma has been working with Griffith University to test the drug pentosan polysulfate sodium (PPS), which has been used to treat and prevent deep vein thrombosis for more than 60 years.

The mosquito-borne virus, which causes fever, joint and muscle aches and fatigue, has plagued parts of Australia this summer.

In a normal year there are about 5,000 cases of Ross River virus reported nationally, but in Victoria alone more than 800 cases have been detected in the north this year, attributed to flooding along the Murray River and other tributaries late last year.

The Western Australian Department of Health has also issued warnings about the increased risk of mosquito-borne diseases, following record rainfall and widespread flooding across the state in February.

Paradigm Biopharma managing director Paul Rennie said currently the only medication doctors prescribed for patients suffering Ross River virus was over-the-counter painkillers to try and stem joint pain and inflammation.

"What we found in [an initial trial] was that PPS [showed] signs the inflammation was being reduced significantly," he said.

"Also the pain in the joints of the animals was reduced.

"And probably most importantly, the effects on the cartilage in the joints of the hands, feet and knees was preserved, as opposed to the animals that didn't have the drug, which led to a rapid deterioration that led to viral arthritis."

Patients show 'remarkable improvements'

Griffith University lead researcher Lara Herrero discovered the potential for PPS to be used as an effective treatment for Ross River virus.

Her pre-clinical research was published in the Journal of Virology in 2015.

Several patients who previously were severely debilitated by the virus have been treated with PPS, and reported "remarkable improvements in their physical capabilities and general wellbeing".

Paradigm Biopharma is about to apply for ethics approval to run phase two clinical trials in humans.

Mr Rennie said the trials could start in June, and would involve a small number of patients in Queensland and Victoria.

"We hope to show the drug is safe, it's well tolerated and also the pain scores, movement of the joints has significantly improved," he said.

"We'll also be taking bloods and analysing them to show that the breakdown of the cartilage doesn't occur in the people treated with the PPS."

Treatment could be available by summer

If the trials prove successful, the company will apply for PPS to be fast-tracked so it is more widely available.

Mr Rennie said the drug could be available to treat Ross River virus as early as next summer.

"We're very hopeful that for next season we may have the drug available in a widespread manner, but it's dependent on the phase two studies," he said.

"The safety [of the drug] has well and truly been taken care of, so fingers crossed.

"This would be a world breakthrough, it will be very, very exciting.

"The research was done in Australia, and then we'd be able to translate some of the work we've been doing here with similar type viruses that appear in Africa, South America and throughout Asia, which is a very close relative of the Ross River virus, but slightly different."

Researchers also have been testing the drug's effectiveness in treating Chikungunya virus.

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PHOTO: The drug tested is currently used to treat deep vein thrombosis. (ABC News)

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