

The fight against hepatitis C in Egypt

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New ways to differentiate between chronic and self-clearing infections may help towards effective patient management and reduce drug costs. But there are major challenges in implementation.

There is a [hepatitis C](#) epidemic in Egypt. Ironically, this is in large part due to a [public health campaign](#) in the 1960s and 1970s, during which injection needles were being re-used. As a result Egypt has the highest incidence of hepatitis C worldwide. But, interestingly, some infected people can clear the virus themselves. The EU-funded project, SPHINX, due to be completed in March 2014, aims to find a solution to this epidemic.

The project is looking at ways to differentiate immune systems of patients that can clear the virus compared to those that develop chronic infection. "Our project is an opportunity to better understand how hepatitis C is controlled by the [immune system](#)," says project coordinator Matthew Albert, director of Immunology at the Pasteur Institute in Paris, France. "And it has provided a deeper appreciation for why the immune system of chronically infected patients was not capable of clearing the virus," he tells youris.com.

To differentiate between chronic infection and virus clearance, project scientists use multiple parameters. They are looking at the way cells of the immune system attack the virus. They use genomics-based approaches to determine genetic variations associated with virus clearance and chronicity. And they also use proteomics to look for molecular biomarkers in the blood. The approach however is not the very latest in 'omics' discovery. Instead, Albert explains: "Our focus is primarily on variations and markers that are robust, and standardised. This way, they can be rapidly introduced in a clinical laboratory and used in patient stratification."

But solving the challenges when it comes to developing HCV diagnostics and treatment for Egypt and developing countries is paramount. "Implementation most of all; we need standardised laboratories, well-trained staff, chain of custody and cold chains for delivery of reagents. And that is complicated in Cairo, but elsewhere it's much harder still," says Albert.

Nonetheless, one expert thinks that practical clinical application has been quite effective. "I do believe it has been translated in some improvement in the care for the patients," says Helmut Diepolder, professor of medicine and head of the department of gastroenterology of the Teaching Hospital of Munich, Germany. "Which is what you can expect within the scope of such a project... But of course it is not the ultimate

answer to hepatitis C in Egypt, with millions of patients and more than a hundred thousand new infections each year," he tells youris.com.

There is also the question of cost. The novel drugs against hepatitis C that will be on the market in the next few years are far too expensive for any country with millions of sufferers, let alone Egypt. Prices can run up to one hundred thousand euros per patient according to Diepolder. That is another advantage for finding good biomarkers. "The new biomarkers that can identify patients who don't need treatment will save money. Also patients in the earliest, acute stage of infection can be helped with a much shorter treatment," he explains. That being said, Diepolder believes a vaccine is the only realistic answer to Hepatitis C in Egypt. "In Germany or the US you won't have any market for a vaccine. But the biggest market for a hepatitis C vaccine will be in Egypt," he tells youris.com.

There is also the feeling that a high number of new infections makes it more pressing to treat as many patients as possible. "That is the way to reduce the pool of infected patients as well as the number of new infections via families, injections, tattoos, circumcisions and what have you," says independent expert Henk Reesink, associate professor of hepatology at the AMC medical centre in Amsterdam, the Netherlands. In addition he notes the cost of drugs down will go down. "Soon there will be more drugs available for the treatment of chronic patients and that simply means competition between pharmaceutical companies. We've seen the same thing happening when the first drug combinations for HIV infected patients became available. Prices for those medicines have gone down dramatically," he tells youris.com. And he too concurs the need for a vaccine: "In a country with 15% of the population infected, of course a vaccine is key. If only to reduce the further spreading of the epidemic."

More information: www.sphinx-hcv.eu/

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