

New Vaccine May Give Norovirus the Heave Ho

By ACSH Staff — December 9, 2011

LigoCyte, a small biotech based in Montana has been working for years on a vaccine for norovirus (the so-called stomach flu, or cruise ship virus). And it looks like they may really have something.

Originally called Norwalk Virus (from Norwalk, Ohio, where it was first isolated in 1968), this little devil is possibly the most infectious pathogen on earth. Estimates of the number of virions necessary for infection range from 10-100, which is minuscule, and the virus is resistant to alcohol, heat and detergents. It is thus no surprise that it is so widespread, with 23 million people in the US catching it each year, second only to the common cold. There are an estimated 1,000 outbreaks every winter.

In the absence of medical support, its impact can be severe. In the developing world norovirus kills about 200,000 children under the age of 5 every year, mostly from dehydration brought about by severe vomiting and diarrhea, making it a serious global health concern.

But even where the best medical treatments are available norovirus can cause quite a bit of trouble. Although it is usually self-limiting, the bug nonetheless causes 800 deaths per year in the US, and hospitalizes 100,000 people (some of whom probably wished they *were* dead at the time). In large cities, there are about 500 ER visits daily during the winter months, and it is estimated that on average, it costs hospitals \$1 million each per year.

It spreads like crazy when it hits, due to its innate infectivity, stability and multiple means of transmission. Outbreaks are common in schools, nursing homes, hospitals, camps and day care centers. And there is no way to prevent it or to treat it (with the possible exception of Zofran, which is being studied).

Until now. The LigoCyte scientists used a virus-like particle (VLP) approach, where a viral capsid minus the RNA (to prevent infection) is given, and this elicits a hopefully protective immune response. The question of whether this would work in humans was answered today. In a small study of about 80 adult volunteers, half received two doses (intranasally) of the vaccine, while the control group did not. All were exposed to the virus (you do not want to know where it came from) and significant protection was found.

In the control group, 82 percent of the volunteers were infected, with 69 percent developing the symptoms. But in the inoculated group, these figures were 69 and 37 percent, respectively, and those who did get sick had milder symptoms. Not a bad start. I suspect they will need to generate a stronger immune response, and probably deal with the genotype issue, but for a first study it is very promising.

I hope they succeed, and do so quickly. It would be really nice to be able to stop one more infectious epidemic, especially such a messy one.

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