Medical Xpress

Cell damage caused by personal lubricants does not increase HIV risk

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The use of certain water-based, over-the-counter personal lubricants can dry out and irritate vaginal and rectal tissue, but does not appear to increase susceptibility to HIV, according to a laboratory study published today in *PLoS ONE*. Even so, say study authors affiliated with the National Institutes of Health (NIH)-funded Microbicide Trials Network (MTN), more research is needed to fully understand the safety of personal lubricants and their effect on epithelial tissue, the layer of mucosal cells that acts as the body's first line of defense against sexually transmitted HIV.

"We tested several kinds of personal lubricants and those that did the most damage to cell tissue were hyperosmolar," said lead study author Charlene S. Dezzutti, Ph.D., associate professor of obstetrics, gynecology and reproductive sciences at the University of Pittsburgh School of Medicine and principal investigator of the MTN Network Laboratory.

"While we know there is cellular toxicity associated with hyperosmolar lubes, the damage did not appear to make cells more vulnerable to HIV infection," Dr. Dezzutti explained.

Hyperosmolar lubricants contain more salts, carbohydrates and proteins than are typically found inside cells of the vagina or rectum. This imbalance causes epithelial cells to lose water and, as a result, dry out. They are different from iso-osmolar lubricants, which contain the same amount of salts and other ingredients as do the cells.

Study investigators tested 14 brand-name over-the-counter and mail-order water-, lipid- and silicon-based lubricants. Lubricants selected were identified as those most commonly used during anal sex in a survey of more than 6,300 respondents. Results indicated that hyperosmolar water-based lubricants caused the most damage to the epithelium in the vagina and rectum compared to iso-osmolar water- and silicon-based lubricants. When the researchers applied the lubricants to vaginal tissue and then exposed it to HIV, they found that the lubricants did not increase susceptibility to HIV. Other studies are seeking to address HIV susceptibility with rectal tissue.

Of the lubricants tested, Good Clean Love and PRÉ, both water-based iso-osmolar lubricants, were shown to be least harmful to epithelial tissue, along with two silicon-based lubricants, Female Condom 2 and Wet Platinum. Lubricants that were most toxic to the epithelial tissue (Gynol II, KY Jelly and Replens) also tended to damage "good" bacteria called lactobacillus, which is needed to maintain a healthy genital tract.

"Much more work needs to be done to explore the safety of lubes," said Dr. Dezzutti. "This was an early study and the jury is still out as to whether hyperosmolar lubes cause damage to the epithelium that in conjunction with other processes, like inflammation, could increase susceptibility to HIV."

"The most important point for people to take away from this study is that condoms are still the best way to protect against HIV and that lubes should always be used with compatible condoms."

Provided by Microbicide Trials Network