

An aspirin a day may keep HIV away, study finds

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Credit: Daniel Foster, Flickr

An affordable, globally available drug – low-dose Aspirin – shows promise as a new approach to preventing HIV transmission, a University of Manitoba study has found.



HIV infection rates remain unacceptably high, especially among young African women. The study team, which included researchers from the universities of Manitoba, Waterloo and Nairobi and the Public Health Agency of Canada, tested the effect of acetylsalicylic acid (ASA or Aspirin) and other anti-inflammatory drugs on HIV target cells in a group of Kenyan women who were at low risk for HIV.

The pilot study, published in the *Journal of the International AIDS Society*, built on existing knowledge about the role of inflammation in HIV transmission.

Transmission of the virus requires a susceptible target cell in the human host. Activated immune cells are more susceptible to HIV infection than resting cells. And it is known that inflammation brings activated HIV target cells to the female genital tract.

Supported by a grant from the Canadian Institutes of Health Research and a Rising Stars grant from Grand Challenge Canada, the researchers found that Aspirin was the most effective anti-inflammatory drug. It reduced the number of HIV target cells in the female genital tract by 35 per cent.

The reduced number of HIV target cells in the women who took Aspirin approached the level found in Kenyan women at high risk of HIV contraction who have remained uninfected for many years.

This study builds on findings from the team which reduced inflammation in an animal model using an intravaginal ring, as published in May by the *Journal of Controlled Release*.

"Further research is needed to confirm our results with Aspirin and test whether this level of target cell reduction will actually prevent HIV infections," Fowke [BSc/88, Ph.D./95] said. "If so, this could be a



strategy for HIV prevention that is not only inexpensive, but easily accessed globally. People living in poverty are disproportionately at risk of acquiring HIV. We need prevention approaches that are affordable and immediately available."

The goal is to provide a new tool in the HIV prevention arsenal that would be used together with other approaches to reduce HIV transmission in high-risk populations, Fowke said.

Study participants were given the same daily low dose of Aspirin that is commonly used for long-term prevention of cardiovascular disease. Participants said they liked that Aspirin does not carry the stigma associated with other anti-HIV drugs, which could mean it is more likely to be used regularly.

More information: Julie Lajoie et al. Using safe, affordable and accessible non-steroidal anti-inflammatory drugs to reduce the number of HIV target cells in the blood and at the female genital tract, *Journal of the International AIDS Society* (2018). DOI: 10.1002/jia2.25150

Yufei Chen et al. Implant delivering hydroxychloroquine attenuates vaginal T lymphocyte activation and inflammation, *Journal of Controlled Release* (2018). DOI: 10.1016/j.jconrel.2018.03.010

Provided by University of Manitoba

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