Toward An Improved Test For Adulterated Heparin

EurekAlert

Scientists are reporting refinement of a new test that promises to help assure the safety of supplies of heparin, the blood thinner taken by millions of people worldwide each year to prevent blood clots. The test can quickly and economically detect adulterants, including the substance responsible for hundreds of illnesses and deaths among patients taking heparin in 2008. The report appears in ACS' journal *Analytical Chemistry.*

David Keire and Cynthia Sommers explain that in 2008, a number of patients died and hundreds patients became seriously ill after receiving batches of the blood thinner that had been adulterated. The U.S. Food and Drug Administration announced a major recall of heparin, and scientists identified the culprit - a substance called "oversulfated chondroitin sulfate" (OSCS). OSCS is a synthetic dietary supplement derived from chondroitin sulfate type A that some people take to treat osteoarthritis. Like heparin, OSCS also prevents blood from forming dangerous clots. But unlike heparin, OSCS can trigger potentially fatal anaphylactic reactions in sensitive individuals. Scientists concluded that OSCS, which is inexpensive, had been intentionally added to heparin as a so-called "economically motivated adulterant" (EMA), to boost profits. Current tests to detect EMAs in heparin are difficult to perform and must be done in laboratories.

To overcome these challenges, the researchers developed a simple color test in which normal heparin samples turn red in color but OSCS contaminated samples do not change color. In the present study, Keire and Sommers wanted to know whether their test could detect additional EMAs. They found that the test could detect several other possible EMAs, such as those that could be made by over-sulfation of waste products formed during heparin production. The researchers say that, on the basis of their results, a portable test to detect even tiny amounts of different EMAs could be developed to insure the safety of the heparin supply chain.

SOURCE [1]

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