MedicalXpress

New cancer drug delivery system shows promise

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A new method of delivering cancer drugs that could cut down on chemotherapy's side effects and boost the strength of the tumor-fighting medicine has shown promise, US researchers said Wednesday.

Early phase 1 studies on a small group of humans have shown the therapy, which delivers a potent cancer drug directly to the tumor through a process known as nanomedicine, is safe and shows some effectiveness in shrinking cancers.

The treatment had an effect even when given at doses as low as 20 percent of the typical amount, said the research presented at a science conference in Chicago and published simultaneously in *Science Translational Medicine*.

In addition, it was shown to concentrate drug activity in the tumor up to 10 times higher than seen in conventional application of the same chemo drug.

"If you try to get that concentration in a conventional form, you will kill the patient," said Omid Farokhzad, a physician-scientist at the Brigham and Women's Hospital and co-senior author of the clinical trial.

The 17 patients involved in the ongoing phase 1 study all have advanced cancers, according to the results presented at the American Association for Cancer Research's annual meeting.

Six of the patients have shown some response to the drug, with one cervical cancer patient showing a shrinkage of tumors and five showing stabilization of their diseases, which include pancreatic, colorectal, bile duct, tonsillar and anal cancer.

Researchers were pleased with the results because the doses were low, suggesting that one day doctors may find a way around the weakening effects of chemotherapy by targeting medicine at the tumor itself.

The nanomedicine is called BIND-014, and Farokhzad, who is also an associate professor at Harvard School of Medicine, described it as the "the first of this kind ever to be going into humans for any kind of illnesses."

The nanomedicine was combined with the chemotherapy drug docetaxel (Taxotere), often used against solid tumors found in patients with breast, ovarian, prostate and non-small cell lung cancer.

BIND-014 is made by BIND Biosciences, a biopharmaceutical company in the northeastern state of Massachusetts.

Study co-author Philip Kantoff, a professor of medicine at Harvard Medical School, said the emerging data "validates the potential for the revolutionary impact of nanomedicines and is a paradigm shift for the treatment of cancer."

More research is needed before scientists can determine if the method is safe for widespread use in the treatment of cancer.