

Does getting 'expensive' drug affect how much patient benefits?

January 28 2015

People's perceptions of the cost of a drug may affect how much they benefit from the drug, even when they are receiving only a placebo, according to a new study of people with Parkinson's disease published in the January 28, 2015 online issue of *Neurology*, the medical journal of the American Academy of Neurology.

"Patients' expectations play an important role in the effectiveness of their treatments, and the [placebo effect](#) has been well documented, especially in people with Parkinson's disease," said study author Alberto J. Espay, MD, MSc, of the University of Cincinnati in Ohio and a Fellow of the American Academy of Neurology. "We wanted to see if the people's perceptions of the cost of the drug they received would affect the [placebo response](#)."

For the study, 12 people with Parkinson's disease were told that they would receive shots of two formulations of the same drug, with the second shot given after the first shot wore off. They were told that the formulations were believed to be of similar effectiveness, but that they differed in manufacturing cost—\$100 per dose versus \$1,500 per dose. Participants were told that the study was intended to prove that the drugs, while priced differently, were equally effective.

In reality, the [participants](#) received only a saline solution for both injections, but were told they were receiving either the "cheap" or "expensive" drug first. Before and after each shot, participants took several tests to measure their [motor skills](#) and also had brain scans to

measure brain activity.

When people received the "expensive" drug first, their motor skills improved by 28 percent compared to when they received the "cheap" drug. On one test of motor skills, people's scores improved by seven points when taking the "expensive" drug first, but improved by only three points when taking the "cheap" drug.

"If we can find strategies to harness the placebo response to enhance the benefits of treatments, we could potentially maximize the benefit of treatment while reducing the dosage of drugs needed and possibly reducing side effects," Espay said.

Espay said that the placebo response may be stronger in people with Parkinson's because the disease decreases the amount of dopamine in the brain and the placebo effect is known to increase the release of brain dopamine. Dopamine affects movement, but it also affects anticipation, motivation and response to new things. "People who receive the shots thinking they received a drug may have an 'expectation of reward' response, which is associated with the release of dopamine similar to the response to the reward itself," he said.

The study received extra scrutiny from the university's review board before it began, since it involved intentional deception of the participants. The review board found that the study complied with federal research regulations that allow waiver of the informed consent requirement, and that the deception would have no adverse effects on the rights or welfare of the participants.

After the study, the participants were told about the true nature of the study. "Eight of the participants said they did have greater expectations of the "expensive" drug and were amazed at the extent of the difference brought about by their expectations," Espay said. "Interestingly, the other

four participants said they had no expectation of greater benefits of the more expensive drug, and they also showed little overall changes."

Provided by American Academy of Neurology

Citation: Does getting 'expensive' drug affect how much patient benefits? (2015, January 28) retrieved 18 May 2023 from <https://medicalxpress.com/news/2015-01-expensive-drug-affect-patient-benefits.html>

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