

Does Eye Color Predict Response to Pain?

Fran Lowry | May 14, 2014

TAMPA, Florida — The color of a person's eyes may predict how that person responds to pain.

"There may be certain phenotypes that predict or indicate a person's response to pain stimuli or drug treatment for pain," Inna Belfer, MD, PhD, from the University of Pittsburgh School of Medicine in Pennsylvania, told *Medscape Medical News*.

"Human pain is correlated with multiple factors like gender, age, and hair color," Dr. Belfer said here at the American Pain Society (APS) 33rd Annual Scientific Meeting. "Researchers have found that red hair is associated with resistance to anesthetics and also to increased anxiety and darker eye color has been reportedly found to correlate with increased physiologic reactivity and drug-induced pupil dilation."

Dr. Belfer added that her anesthesiology colleagues reported noticing a similar association.

"They said that looking in the eyes of their patients tells them if they can expect more or less trouble during the procedures and they can tell who will develop more severe pain or who will respond differently to anesthesia and analgesia," she said.

To explore this association further, Dr. Belfer and her group studied eye color and pain-related traits in healthy women who were undergoing labor and delivery.

They assessed antepartum and postpartum pain, mood, sleep, and coping behavior in 58 women who gave birth at UPMC Magee Women's Hospital. The women were grouped into 2 cohorts based on their eye color: 24 women in the dark group (brown or hazel eye color) and 34 women in the light group (blue or green eye color).

The women were profiled by using standard validated surveys, including the Brief Pain Inventory, PROMIS anxiety/depression/sleep scales, the Pain Catastrophizing Scale, and Quantitative Sensory Testing, to measure their response to pain.

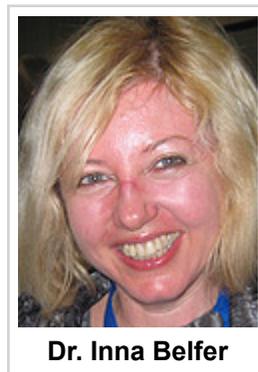
The results showed that women with dark-colored eyes showed increased anxiety compared with women with light-colored eyes ($P = .01$).

Women with dark-colored eyes also trended toward increased sleep disturbance ($P = .19$) and less improvement in catastrophizing/rumination ($P = .15$) compared with women with light eye color.

Those with darker eyes also showed trends toward experiencing more pain than women with light eye color, both at rest ($P = .28$) and during movement ($P = .22$) after receiving epidural analgesia.

Darker-eyed women were less tolerant of heat pain and were also more likely to be depressed as a result of their pain than were light-eyed women, Dr. Belfer said.

"Due to the small sample size, we can't get compelling evidence for our findings, but we do feel that our study has revealed patterns that warrant further studies. We are going to see if there is a link between eye color and clinical pain in part 2 of this project, in men and in women, and in different pain models other than the labor pain model," Dr. Belfer said.



Dr. Inna Belfer

The reason for any differences in pain response could be genetic, Dr. Belfer said. "I specialize in the molecular physiology of pain and we think that there is a genetic background for these effects," she said.

Genetic Link Interesting



**Dr. Gregory W.
Terman**

"Essentially what they are looking for are genetic correlates, how genes affect the response to pain," said Gregory W. Terman, PhD, MD, professor of anesthesiology, University of Washington, Seattle, asked by *Medscape Medical News* to comment on the study.

"This is interesting. If you can identify different genes that may be important, perhaps we can increase our understanding of the pain picture and why there are differences in the amount of pain some people can tolerate. In this case, they may be looking for yet another gene that is correlated with increased or decreased pain, and there are quite a few of those around," Dr. Terman, president-elect of the American Pain Society, said.

He agreed that trying to find correlations between patients and pain responses is a promising area of research.

This study was supported by the University of Pittsburgh Department of Anesthesiology Seed Award and New Competitive Medical Research Fund. Dr. Belfer and Dr. Terman have disclosed no relevant financial relationships.

American Pain Society (APS) 33rd Annual Scientific Meeting. Abstract 197. Presented May 1, 2014.

Medscape Medical News © 2014 WebMD, LLC

Send comments and news tips to news@medscape.net.

Cite this article: Does Eye Color Predict Response to Pain? *Medscape*. May 14, 2014.