Belief that new is better

From: Key Concepts for assessing claims about treatment effects and making well-informed treatment choices (Version 2022)

1.3d Do not assume that a treatment is better based on how new or technologically impressive it is.

Explanation

New treatments can be assumed to be better simply because they are new, more expensive, or technologically impressive. However, on average, they are only very slightly likely to be better than other available treatments. Some side effects of treatments, for example, take time to appear, and without long term follow-up it may not be possible to know whether they will appear.

Vioxx (rofecoxib) was a new non-steroidal anti-inflammatory drug (NSAID) prescribed to decrease pain and inflammation in arthritis and acute pain in adults. Fair comparisons showed that more people who took Vioxx for eight weeks had relief from arthritis symptoms than people who took a 'sugar pill' or placebo, and that it worked just as well as Naprosyn *[Garner 2005 (SR)]*. Vioxx was approved by the U.S. Federal Drug Administration (FDA) in 1999. The producer of Vioxx spent $161 million advertising Vioxx with advertisements like this:

``Just one small pill let me resume my life. I could get up in the morning without pain. I could take my daughter to the park, lace up my skates and perform again. It was a miracle.''

DOROTHY HAMILL, OLYMPIC ICESKATING CHAMPION, IN A TV AD FOR VIOXX

However, Vioxx was withdrawn from the market in 2004 after it was shown that long-term use increased the risk of heart attack and stroke.

Basis for this concept

About 4% of new medicines approved in Canada between 1990 and 2009 were withdrawn because of adverse effects after two to eight years *[Lexchin 2014 (RS)]*. Worldwide, the average time between introduction of a medicine and its withdrawal due to safety is about 20 years (SD±14 years) *[Craveiro 2020 (SR)]*. Worldwide, among medicines launched between 1951 and 2007, 83 were withdrawn because of drug-attributed deaths between 1957 and 2001 *[Onakpoya 2017 (SR)]*. Among 353 medicines withdrawn from any country between 1950 and 2015 because of an adverse effect, only 40 were withdrawn worldwide *[Onakpoya 2016b (SR)]*. The median time between the first launch and worldwide withdrawal of a medicine was four years (interquartile range four to 24 years). The interval between launch date and reports of adverse drug reactions has shortened over the past few decades *[Onakpoya 2016a (SR)]*. This may be in part because of more people being exposed more quickly, leading to quicker detection of adverse reactions. However, withdrawal of medicines following reports of suspected serious adverse reactions has not improved consistently, and harmful medicines are less likely to be withdrawn in African countries.

It is more difficult to document the proportion of new non-pharmacological treatments that are found to be harmful. Only slightly more than half of new treatments that are evaluated in randomized trials have been found to be better than established treatments, and few were substantially better *[Djulbegovic 2012 (SR)]*. This suggests that a large proportion of new treatments are unlikely to be substantially better than other available treatments. Large effects of medical treatments on outcomes that are important to patients are uncommon *[Pereira 2012 (SR)]*. Many new non-pharmaceutical treatments are not evaluated in randomized trials, so it is uncertain how effective or safe they are. New treatments with limited or no evidence of benefit are frequently introduced into practice. For example, about half of the recommendations in major cardiology guidelines are based on low-certainty evidence or expert opinion *[Tricoci 2009 (SR)]*. Similarly, about half of the recommendations in *UpToDate,* a widely used medical textbook, are based on low-certainty evidence *[Agoritsas 2017 (RS)]*.

Implications

Do not assume that a treatment is better or safer simply because it is new, brand-named, expensive, or technologically impressive.

References

Systematic reviews

Craveiro NS, Lopes BS, Tomás L, Almeida SF. Drug withdrawal due to safety: a review of the data supporting withdrawal decision. Curr Drug Saf. 2020;15(1):4-12. https://doi.org/10.2174/1574886314666191004092520

Djulbegovic B, Kumar A, Glasziou PP, Perera R, Reljic T, Dent L, et al. New treatments compared to established treatments in randomized trials. Cochrane Database Syst Rev. 2012;10(10):Mr000024. https://doi.org/10.1002/14651858.mr000024.pub3

Garner SE, Fidan D, Frankish RR, Judd M, Towheed T, Tugwell P, et al. Rofecoxib for rheumatoid arthritis. Cochrane Database Syst Rev. 2005(1):CD003685. https://doi.org//10.1002/14651858.CD003685.pub2

Onakpoya IJ, Heneghan CJ, Aronson JK. Post-marketing withdrawal of 462 medicinal products because of adverse drug reactions: a systematic review of the world literature. BMC Med. 2016a;14:10. https://doi.org/10.1186/s12916-016-0553-2

Onakpoya IJ, Heneghan CJ, Aronson JK. Worldwide withdrawal of medicinal products because of adverse drug reactions: a systematic review and analysis. Crit Rev Toxicol. 2016b;46(6):477-89. https://doi.org/10.3109/10408444.2016.1149452

Onakpoya IJ, Heneghan CJ, Aronson JK. Post-marketing regulation of medicines withdrawn from the market because of drug-attributed deaths: an analysis of justification. Drug Saf. 2017;40(5):431-41.

Pereira TV, Horwitz RI, Ioannidis JP. Empirical evaluation of very large treatment effects of medical interventions. JAMA. 2012;308(16):1676-84. https://doi.org/10.1001/jama.2012.13444

Tricoci P, Allen JM, Kramer JM, Califf RM, Smith SC, Jr. Scientific evidence underlying the ACC/AHA clinical practice guidelines. JAMA. 2009;301(8):831-41. https://doi.org/10.1001/jama.2009.205

Research studies

Agoritsas T, Merglen A, Heen AF, Kristiansen A, Neumann I, Brito JP, et al. UpToDate adherence to GRADE criteria for strong recommendations: an analytical survey. BMJ Open. 2017;7(11):e018593. https://doi.org/10.1136/bmjopen-2017-018593

Lexchin J. How safe are new drugs? Market withdrawal of drugs approved in Canada between 1990 and 2009. Open Med. 2014;8(1):e14-9. http://www.ncbi.nlm.nih.gov/pmc/articles/pmc4085091/