



June 18, 2015 – Grand Rapids, MI

PPIs and Heart Attacks: A Closer Look

Today we'll take a closer look at the Stanford Study I talked about on [Tuesday](#) (1). Before I do, I have to say that I'm in awe of the sheer data that was examined in this study. The lead author, Nigam Shah PhD, is a pioneer in this type of data-mining technique. The research wouldn't have been possible if Stanford did not begin using electronic medical records in 1994. The program did not only read the diagnoses and other variables but also physician notes. Think how complicated a program would be required to do that!

And that's the focus of today's message. This was not a study about health or preventing disease as the very elaborate press release from Stanford suggested (2); this was a study about using high-speed computers and electronic medical records to find associations between variables. That's all. The authors seem to acknowledge that as well, but to get the most traction, they understandably wanted to make it seem like more. In my opinion, a researcher's job is not just to do research, it's also to attract funding so he or she can continue to do research. I'm not passing judgment—I've been in their shoes—but it's a fact we need to keep in mind as we evaluate their findings.



The study also looked at another class of reflux meds, and the association with heart attacks was not there. Either way that's still not cause and effect with PPIs and heart attacks.

The problem was the hypothesis. One would expect it would be to find out if PPIs are associated with heart attacks in the general population. While that's implied, I think the link was assumed and the real hypothesis was to find out whether data mining could find the association. It turns out it did, so the algorithm in the program worked.

The problem is that it means nothing: it's just an association between two variables. In order to be meaningful, they needed to do a couple of things that would have been easy to do. I'll let you know what they are and give you my Bottom Line in tomorrow's message.

What are you prepared to do today?

Dr. Chet

References:

1. PLoS ONE 10(6): e0124653. doi:10.1371/journal.pone.0124653.
2. <http://med.stanford.edu/news/all-news/2015/06/some-heartburn-drugs-may-boost-risk-of-heart-attack-study-finds.html>

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