The drug fighting aids

Health & Medicine

Inferential Statistics: Module Four

As a researcher who has developed a powerful new drug that may help to raise t-cell counts in AIDS patients and significantly retard the disease, I am now ready to test the drug in comparison to the standard multi-drug regimen traditionally subscribed for these patients. I have set up my research as follows:

Research Hypothesis: To conduct testing to determine if there is a significant level of difference in the study population given the new drug when compared to a control group given a placebo.

The independent variable will be the use of the new drug, and the dependent variable will be the t-cell counts between the two groups.

Obviously, there is a potential bias here as I have developed the new drug and I am the person conducting the research. Accordingly, I am going to address any possible researcher bias by using a null hypothesis that the t-cell counts of the two groups will be the same; $\mu 1-\mu 2= 0$. In this way, I will construct " the reverse of what [I] actually believe," and construct the research in such as way as to " allow the data to contradict it" (Lane, 2007, n. p.). In anticipation of the possibility of efficacy, I will construct a directional alternative hypothesis which states " Patients who take the new drug will demonstrate a statistically significant higher t-cell count than those who do not."

In order to give weight to the results of my study, I will be using a large sample of patients who have agreed to undergo the research with full consent after interviews and questionnaires have been returned. The study subjects will all be diagnosed AIDS patients at three metropolitan research hospitals in New York City. By utilizing a large sample population and a

double-blind methodology, I expect to be able to overcome any selection bias or researcher bias so that my results will carry significant validity. As Bratman (2004) notes:

…in a randomized double-blind, placebo-controlled trial of a medical treatment, some of the participants are given the treatment, others are given fake treatment (placebo), and neither the researchers nor the participants know which is which until the study ends (they are thus both “ blind”). The assignment of participants to treatment or placebo is done randomly, perhaps by flipping a coin (hence, “ randomized”). (n. p.)

I do have an ethical concern regarding those participants in the study who will be given the placebo. I have, however, obtained informed consent from the participants who are fully aware that they may receive a placebo rather than the new drug. Their attitude during my surveys, and mine as well, is that anything that can be done to help mitigate the ravages of this terrible condition should be done as long as full disclosure and informed consent is obtained.

References

Bratman, S. (2004). Double-Blind Studies: A Major Scientific Advance of the 20th Century. Retrieved March 8, 2009 from http://www. mendosa. com/bratman. htm

Lane, D. M. (2007). Null Hypothesis. Retrieved March 8, 2009, from http://davidmlane. com/hyperstat/A29337. html