Case-control studies: What exactly are they?

People usually learn about clinical studies, results, projects, cases and other relevant topics by reading online sources or through social media. And while they pay attention on the content, they rarely focus on the design of the study itself. Even though it may seem as something irrelevant, it is, in fact, very crucial to the understanding of the results, findings of the trial and their quality. And when it comes to findings and evidence, the most reliable ones are proven to derive from case-control studies, cohort studies, systematic reviews and randomized controlled trials. In this article, however, we are going to narrow down our focus and discuss the first type – case-control studies.

To start with, a case-control study is a type of observational study which is gaining more popularity among clinical research communities. These days, studies of this sort are known to be used more often than before largely because they are designed specifically for discovering possible associations or links between disease, patient exposure and outcome. Such researches are always carried out retrospectively. But what does that really mean? In essence, retrospective case-control studies require researchers to review data and specifics about a patient's outcome status collected in the past. The main purpose is to find out whether or not a given outcome can be somehow related to a certain risk factor. To present it differently, these begin with a given outcome. It is, then, traced back in order for researchers to examine the exposures of subjects to suspected risk. Researchers have two groups of people. "Cases" – one with existing disease and "controls" – a similar group of subjects, without the

existing health problem. Once patients are categorized and placed into these groups, the outcomes of these people are exposed to the researcher. What makes these medical research investigations so important is the strict procedural developments in their design, implementation as well as analysis.

There are also prospective case-control studies but they are less common and are used less frequently. When conducting prospective case-control studies and throughout the course of the study, researchers look for outcomes, like the development of a disease, for example. If this is the case, experts involve refer it to another factor, which could be a suspected risk. Furthermore, these studies usually involve taking a cohort of subjects that is observed prospectively and over prolonged period of time.

Why are case-control studies useful in medical research?

Several key benefits define these medical research investigations as really useful in the sector. First and foremost, they are relatively easy and quick to carry out, because they are typically done retrospectively. The necessary data is already at hand and researchers can easily go on with the process. Next, it doesn't require too many people to provide with statistical results. The subjects involved are comparatively fewer than those in other analytical trials. What is more, case-control studies can hardly pose any ethical concerns, while procedures are being followed and tests are being performed on groups of people. And lastly, they are perfect when it comes to evaluating several exposures or risk factors for a single outcome.

To sum up all of what has been said, case-control studies are observational studies. They are primarily use to identify factors which may lead to a medical condition or a disease. To do that, researchers compare two group of patients – cases and controls. The first group consists of people who suffer from that disease, while the second group of people does not the condition, but are yet, to some extent, similar. The reasons why many experts prefer case-control studies is because they are time- and cost efficient, take fewer people to be investigated and allow researchers to avoid ethical challenges.

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