MEDICAL STATISTICS FOR ASSESSMENT OF RISK: AN IMPORTANT ISSUE IN MEDICAL EPIDEMIOLOGY

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ABSTRACT

The use of applied mathematics is very interesting. The application of medical statistics in medicine is a good example. In this short article, the authors present the basic fundamental of using medical statistics for determining the risk in clinical epidemiology. The two important statistical values, relative risk an odds ratio, are mentioned in this article.

KEYWORD: Mathematics, Statistics, Medicine, Risk.

INTRODUCTION

The use of applied mathematics is very interesting. The application of medical statistics in medicine is a good example. In this short article, the authors present the basic fundamental of using medical statistics for determining the risk in clinical epidemiology. The two important statistical values, relative risk an odds ratio, are mentioned in this article.

DETERMINATION FOR RISK IN CLINICAL EPIDEMIOLOGY BY MEAN OF MEDIAL STATISTICS

In clinical epidemiology, the relationship between possible cause or etiology and illness is the big consideration. To tell whether a factor is considered risk or not is important for preventive action. The mathematical application can help answer the mentioned clinical problem [1-3]. In fact, the use of statistical method can help judge whether a factor is a risk or not. The statistical application has to risk for a good clinical study whether a prospective or retrospective one. For a prospective study, pone has to identify a possible risk in the study and prospectively perform a surveillance to determine the occurrence of focused illness. The comparison between the rate of illness occurrence in ones with and without possible risk factor at the starting point is the basic concept for measurement of risk. On the other hand, a retrospective study might be easier. This starts from the selection of a group of patients with illness and another control group (without disease). Identifying the possible risk factor in each group is further done then the comparison between the rate of illness occurrence in ones with and without possible risk factor is the basic concept for measurement of risk. It should be noted that this retrospective technique is inferior to the prospective study according to the possible problem of memory regarding the exposure to risk factor.

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The two well-known medical statistics for determining the risk are relative risk and odds ratio. Relative risk is used for a prospective study and odds ratio is used for a retrospective study. The calculation of each parameter is presented as the below formula:

Relative risk = risk of event in the treatment group/ risk of event in the control group

Odds ratio = odds of event in the treatment group/ odds of event in the control group

These two parameters are widely used in clinical epidemiology at present. The risk value might also be presented in 95% confidence interval.

CONCLUSION

Medical statistics can be effectively used for determining risk in medicine. The good calculation is based on the data collection from a good research plan in either prospective or retrospective formats.

CONFLICT OF INTEREST: None

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