Correspondence

Study designs in healthcare research

To the Editor

In an earlier issue of the Saudi Medical Journal, I read with interest the article reported by Dr. Yaseen Arabi entitled "Study designs in healthcare research". Dr Arabi has presented a brief and clear discussion on the research methods usually applied in health care studies with some explanatory examples that are mainly in clinical fields of medicine. I wish to point out that while the paper has almost discussed all the research designs available in healthcare fields, it is missing one new method in this field called "case only" design. The "case only" method was originally designed as a valid approach to analyze and screening of genetic factors in the etiology of multifactorial diseases.[9,10] Some concerns in traditional case-control studies including control group and appropriate selection of control subjects, expensive cost for examining genetic markers in both cases and controls, and time consuming process of such studies have led to the development of this method on studying the gene-environment interaction in human diseases. In a "case only" study, cases with and without the susceptible genotype are compared with each other in terms of the existence of the environmental exposure. Investigators in studying human malignancies have broadly used this method in the recent years. To conduct a "case only" design, the same epidemiological approaches of case selection rules for any case-control study are applied.[11] The "case only" study does not, therefore have the complexity of rules for the selection of control subjects which usually appears in traditional case-control studies. The "case only" method also requires fewer cases than the traditional case-control study.[12] Furthermore, for some technical reasons (namely the assumption of independence between exposure and genotype in the population, and so forth), the "case only" design has been studied/ reported to be more efficient, precise and powerful compared with a traditional case-control method.[13,14] However, there are some important assumptions that must be considered in the application of this model in different studies of genetic factors. More details of these assumptions and assessment of the gene-environment interaction in "case only" studies can be found elsewhere .[15-26]

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