Incidence of Diabetes Study – A Laudable Contribution from India

Sir,

The concept of incidence and prevalence are often confused by physicians. Two excellent studies CUPS - 19 (March 08)\(^1\) and CURES 52 (May 07)\(^2\) both by Mohan et al from Chennai are excellent examples of an incidence and a prevalence study from India. Both the articles are also accompanied by masterly editorials by Dr. Shasank Joshi\(^3,4\) which put incidence and prevalence studies in India in their proper prospective.

Most of the research work undertaken by physicians in India are clinic or laboratory based with individual patient as unit of study and adopting case control study. The second most common post graduate thesis work or departmental research work is randomized control trials popularly known as clinical trials. Field or community population based studies are rarely undertaken and even when done are usually prevalence or cross sectional studies.

Statistically speaking, screening of the whole population is not rewarding for a chronic disease like diabetes mellitus. Screening of target population or selected population of high risk groups (e.g., age > 40 Yrs, family history of diabetes mellitus, mother of high birth weight baby, excess weight gain in pregnancy and premature atherosclerosis) is probably more meaningful as the ‘yield’ rates are higher.

The editorial\(^1\) “Incidence Data on Diabetes for India” based on CUPS -19 study is extremely lucid in defining what an incidence study is. We would like to add that the characteristics of an incidence study are as follows:\(^5\):
- It is a longitudinal prospective study on a cohort or defined group of individuals.
- Observations are repeated on the same population and helps detect new cases at the end of study period.
- Helps to study natural history of disease and future outcomes and to identify risk factors which are probably ‘casual’ in nature.
- Provides pointers to aetiology with respect to agents/host/environment.
- Points to trends of the disease and future projections.
- Helps to prepare and evaluate morbidity control programmes.

Time sequence of disease which is essential to public health can be deduced only in a longitudinal or incidence study.

Unfortunately often we physicians use the term “incidence” very loosely when we actually mean “prevalence”. For example, in the article “Incidence of Renal Artery Stenosis in Patients undergoing Coronary Angiography”,\(^6\) the term incidence has been used for a prevalence study showing association of coronary artery disease and renal artery stenosis and identification of high risk group. Several other examples can be quoted in the Indian literatures.

Cross sectional or prevalence study based on single examination at one point of time tells us about distribution and load of the disease and is influenced by various parameters like incidence, chronicity, duration of disease, mortality and failure of control programme. A cross sectional study often then leads to the planning and execution of incidence studies.

Doing incidence studies is extremely important and invaluable but there are major challenges such as follow up, prolonged period of time, expense, manpower, attitude of participants, natural impediments and migration.

The largest epidemiological study on diabetes mellitus done in India todate, namely CURES was a prevalence study in all its three phases i.e., CURES Phases 1 to 3 and has helped to provide world class epidemiological data not only on diabetes but also hypertension, dyslipidemia, obesity and coronary artery disease in urban India. On the other hand, the CUPS study which started in 1996 has not only provided prevalence data on diabetes and metabolic syndrome, but now with its 8 years of follow up, has become a pioneering incidence study published from India.\(^1\)

In today’s scenario of physicians distancing themselves from epidemiological or population based studies in general and incidence studies in particular, the clarion call from the editor for more incidence study is indeed laudable.

We also thank Dr. Mahapatra et al for their valuable comments and kind words of support.

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REFERENCES

Reply from the Authors

Sir,
The authors wish to thank Dr. Lele for his valuable...
suggestions and his deep insight into this subject. We thank him for his suggestion to do Pro-insulin by insulin ratio in this population. This being the first report of incidence rates on diabetes, we have only looked at the incidence rates of diabetes and pre diabetes. When we do further analysis including some of the biochemical estimations we shall certainly study the proinsulin/insulin ratio also. We agree with Dr. Lele that this is an extremely useful marker.

Regarding the presentation of the waist circumference and BMI, as they followed a normal distribution and the standard deviations were not very large, it is still justifiable to use means and standard deviations. For data which are widely skewed such as serum triglyceride, we use median or log transformed values. However, as Dr. Lele has requested for the scattegrams, they are provided as Figs. 1 and 2.

We once again thank Dr. Lele for his very valuable scientific inputs. We are indeed aware of his tremendous contributions in this field.

We also thank Mahapatra et al for their valuable comments and kind words of support.

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