

The Truth We Mortals Need-----**Dr. Swanand Shukla (Medicine)**

Journey of mankind and his endeavor is endless. We had collected many gems of success and dropped down grimes of failure. The stories of yesterday were submerged with knowledge of present. The face of knowledge will keep on changing. 'N' number of authorities will pour their energy to keep this process alive. Change, development & progress, are signs of life. Many miles we had walked, yet many miles we have to walk. The whole agitation is for one thing that is to search truth and truth only. Search and research are probes to reach to the bottom of subject & to explore this truth.

'Gelert's poem

The truth we mortals need

Us bless to make and keep

The all over slightly covered over

But did not buried deep'

Research and development, a phrase unheard of in the early part of the 20th century, has since become a universal watchword in industrialized nations. The concept of research is as old as science; the concept of the intimate relationship between research and subsequent development, however, was not generally recognized until the 1950s... The foundation of any innovation is an invention. Indeed, an innovation might be defined as the application of an invention to a significant market need. Inventions come from research—careful, focused, sustained inquiry, frequently and trial and error. Research can be either basic or applied, a distinction that was established in the first half of the 20th century. Basic research is defined as the work of scientists and others who pursue their investigations without conscious goals, other than the desire to unravel the secrets of nature.

With the wings of research we had seen our space and reach to the warm depth of our planet. Research in medicine expanded from four wall laboratory to well defined laboratory of community. Medicine has gone through the various changes of metamorphosis. We are challenging our own propositions to squeeze out the truth. Randomized control trial is considered as the most authentic scientific tool [RCT]

In the hierarchy of evidence that influences healthcare policy and practice, RCTs are considered by most to be the top individual unit of research. They are considered the most reliable form of scientific evidence because they eliminate spurious causality and bias

Sellers of medicines throughout the ages have had to convince their consumers that the medicine works. As science has progressed, public expectations have risen, and government health budgets have become ever tighter, pressure has grown for a reliable system to do this. In most modern health-care systems all new medicines, surgical procedures, preventive measures, and other health interventions therefore have to undergo trials before being approved.

Trials are used to establish average efficacy of a treatment as well as learn about its most frequently occurring side-effects. This is meant to address the following concerns. First, effects of a treatment may be small and therefore undetectable except when studied systematically on a large population. Second,

biological organisms (including humans) are complex, and do not react to the same stimulus in the same way, which makes inference from single clinical reports very unreliable and generally unacceptable as scientific evidence. Third, some conditions will spontaneously go into remission, with many extant reports of miraculous cures for no discernible reason. Finally, it is well-known and has been proven that the act of administering the treatment itself may have direct, sometimes very powerful, psychological effects on the patient, which is known as the placebo effect.

This kind of study demands community participation and appropriate technology. We could understand causation, natural history of disease, Randomized control trial interventions, with the help

Basic steps in the Randomized control trial are as follows

- Drawing Up A Protocol- fixing the objectives, methodology, frequency of follow ups, statistical methods
- Selecting Reference – this is the group where result of test will be applied
- Selecting Experimental Population – this is actual group which participate in experimentation.
- Randomization – experimental group divided in to two groups for comparison. Comparison is essence of epidemiology.
- Manipulation Or Intervention- one group is subjected for manipulation or intervention and for other group conventional method or placebo is administered.
- Follow Up
- Assessment Of Out Come –statistical methods are used.

Difficulties in study

Outside pressure

A major difficulty in dealing with trial results comes from commercial, political and/or academic pressure. Most trials are expensive to run, and will be the result of significant previous research, which is itself not cheap. There may be a political issue at stake (compare MMR vaccine) or vested interests (compare homeopathy). In such cases there is great pressure to interpret results in a way which suits the viewer, and great care must be taken by researchers to maintain emphasis on clinical facts.

Statistical error

Most studies start with a 'null hypothesis' which is being tested (usually along the lines of 'our new treatment x cures as many patients as existing treatment y ') and an alternative hypothesis (' x cures more patients than y '). The analysis at the end will give a statistical likelihood, based on the facts, of whether the null hypothesis can be safely rejected (saying that the new treatment does, in fact, result in more cures). Nevertheless this is only a statistical likelihood, so false negatives and false positives are possible. These are generally set an acceptable level (e.g., 1% chance that it was a false result). However, this risk is cumulative, so if 200 trials are done (often the case for contentious matters) about 2 will show contrary results. There is a tendency for these two to be seized on by those who need that proof for their point of view.

Blinding

Ideally, studies should be blinded (see above) by giving placebo treatments, to avoid bias caused by placebo effects. However, for some treatments placebos are not possible. Examples:

- treatments where a convincing placebo treatment would be too dangerous to be ethically acceptable (e.g., surgery)
- treatments where active participation of the patient is necessary (e.g., physical therapy, dieting)

Thus, some treatments can by their nature not be subjected to blinded studies.

Conclusion - thus what we are having is the best of the past. Research techniques will become better and better everyday .science makes our vision clear. Really research is boon for man kind and it helps us to climb great heights of success.