

## Medical research and science culture in Pakistan

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"The grass looks greener on the other side of the fence", is a proverb true to its roots. People think that they would be better placed in a different set of circumstances. This is what we are experiencing with our young medical graduates who have an ultimate goal of migrating to USA. Much to their disappointment they are not served with a good placement on arrival. Many of them have to wait for years to start residency. They take up research positions to keep their brains working, resumes filled and pockets active. Such research activities eventually help some of them in getting into good institutes. However, not all doctors want to go in the research field; reason being that they have not had enough exposure to research in Pakistan where the research culture is still in the preliminary stages.

"Science culture requires people to show curiosity, eagerness to explore, tolerability of diversity, capacity to share intellectual ideas and willingness to accept the fallibility of one's own ideas if proved wrong". These qualities were summarized by Professor Abdus Salam in his speech at the 1984 UNESCO Conference where he spoke of the reasons for the decline of science in the Muslim world. In absence of a science culture unsurprisingly we have failed to develop technology suited to our local needs.<sup>1</sup> Starting from the school age, teachers do not motivate children to think in the direction of finding something new. As these youngsters grow up and enter medical colleges, majority of them are focussed on the goal of finding better opportunities abroad.

Most medical students or faculty perform research with a focussed objective as part of the curriculum to pass exams, get a promotion or improve their Curriculum Vitae. A large portion of research done in Pakistan is descriptive cross sectional studies or questionnaire based Knowledge Attitude and Practice Surveys. Unfortunately, the evolution of research in Pakistan is still in the elementary stages and has many layers to grow through. The institutes who do conduct

Randomized Clinical Trials (RCT) in Pakistan try to keep a low profile in order to avoid negative publicity and criticism. As of November 2014 the ClinicalTrials.gov website reports a total of 79 open studies in Pakistan. There are 3 phase I trials, 9 phase II, 14 phase III and 12 phase IV. Remaining trials are unspecified. Sixty two are interventional and 17 are observational.<sup>2</sup> A detailed review of these trails will follow this year in the Learning Research Series.

The history of RCTs dates back to 800 BC when Daniel and Judah conducted a trial comparing the health effects of a vegetarian diet with a royal Babylonian diet for just ten days finding impressive results. These have been used for over two millennia<sup>3</sup> Progress in RCTS came in the 19th century followed by a more precise trial done by Austin Bradford Hill on the use of Streptomycin for Tuberculosis<sup>4</sup> Majority of the RCTS are being conducted to study the pharmacokinetics and pharmacodynamics of new treatments. They are monitored by regulatory bodies. It is mandatory to follow good clinical practice teachings and specific protocols to the word. They compare the effect of interventions in various groups. The study group receives the drug under trial whereas the control group is given the placebo or 'sugar pill'. In some trials the study group receiving the intervention are further sub divided according to various doses of the medicine being tested etc. Ethics is observed strictly. Any adverse reaction and serious adverse reactions are reported immediately. Eventually the data collected from these RCTs are used to write up systematic reviews. These are the highest order of medical literature and the basis of evidence based medicine.<sup>5</sup> It is an established fact that RCTs are expensive. However they are the most reliable means of measuring the effects of any treatment.<sup>6</sup>

JPMA has always had a mission of enhancing knowledge on various aspects of research and its publication. This year JPMA will try to enlighten its readers with practical guide articles through its Learning Research Series. Focus will be on various aspects of RCTs with real life examples.

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