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Editorial

Dentistry: Changing paradigm with growth of basic sciences

The advent of nucleic acid era since 1955 has opened new horizons in the field of medicine. This led to development of a science that could devise new ways and methods to see the constitution of our genetic material and even manipulate genetic makeup of an individual to get desired phenotype. However, the journey has not been easy and is still full of possibilities with future.

Though medicine and dental sciences emerged together, they are at different stages of development. Dentistry separated from medicine due to the explosive increase in the demand for dental treatment in the 19th century largely due to industrial era in Europe and Great Britain Colonies. Hence, Dental Science had from *ab initio* focussed only oral microbiology and oral pathology. The core area of basic biology was largely left untouched.

The huge growth in medical science can be traced back to the formation of the Carnegie Commission on Medical Education and publication of "Flexner Report" of 1910 by Abraham Flexner in USA. This led to a major overhaul in medical education worldwide. It advocated integrating basic sciences into medical curriculum. A similar report for dental speciality, Gies Report, issued in 1926 in USA, called for inclusion of basic sciences into dental curriculum. However, it had limited effect on dental education as dental schools heavily relied on basic science departments established in a medical school. Faculties and administrators taking basic science instruction of the dental students were not as serious as their medical school counterparts. This resulted in a retardation of the pace of development of a modern concept of dental practice.

Dentistry needs to develop its own basic science devoted exclusively to the study of biology of mouth, in order to strengthen its base. Oral Biology the proper terminology to be used is the right term that can be said to encompass concepts, tools and techniques of modern biology. Like the first "biomedical scientists" who were physician-anatomists, the first oral biologists were the dentists. This discipline started in 19th century with the publication of the book 'The

Microorganisms of the Mouth' by an American dentist living in Germany in 1890. His contribution was his interest in understanding the biological basis of the dental caries process and propounding of the 'chemicoparasitic theory' of dental caries. The first departments of oral biology in the dental schools opened at the University of Manitoba in Canada in 1959 and the University of Buffalo in 1960 in USA.

Today the discipline is well established in USA but is finding hard ground in developing countries, especially India. One of the reasons for this is shortage of funding for such training in India and properly trained oral biologists. The other reason is resistance from both dental schools and regulatory bodies to incorporate oral biology into the dental curriculum. This is largely due to incomplete understanding of how medicine, dentistry, and the biomedical sciences evolved and how they are likely to develop in future.

With the completion of Human Genome Project in 2003, the knowledge generated has resulted in formation and growth of disciplines like personalized medicine, predictive medicine and molecular medicine in medical fraternity. The dental fraternity lies at cross roads and at present, is largely unaware of how to apply this phenomenal data to clinical use. It is high point for us to develop an "informed consensus" on incorporating the ever-growing stream of oral biology into the foundation of dental education—in the same way that medical education embraced the earlier developing biomedical disciplines. Otherwise there is an imminent danger of dentistry becoming an art more than a science.

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