

COST-EFFECTIVE NEUROIMAGING

ABSTRACT

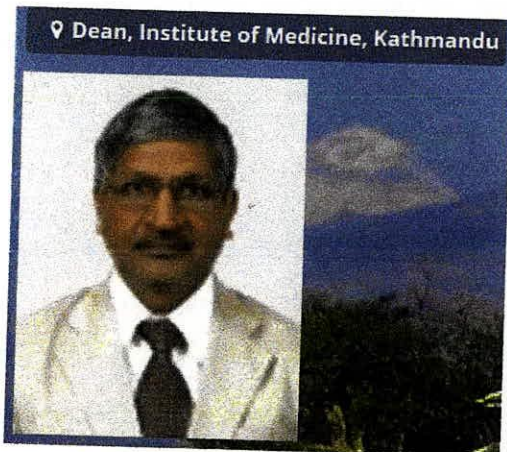
F. Gerstenbrand

Since the introduction of the lumbar puncture in 1891, an exciting array of technology has become available to assist the physician in diagnosis and management of nervous system disease. The past 25 years have seen the advancement of a myriad of neuroimaging modalities including: CT, carotid Doppler, real-time carotid ultrasound, transcranial Doppler, MRI, MRA, SPECT and PET. Recently, refinements of these technologies and new technology has appeared including: Color flow carotid Doppler and TCD, MR Spectroscopy, 3-D MRI, and MEG.

Although all provide useful data and are atraumatic, equipment costs are extremely high in some and noteworthy in all. Likewise, operational costs for facilities, technologists, and physicians are significant. Therefore, the physician must know the indications and limitations of each modality and must develop criteria for selection of modality(s) to be used for a given patient's problem. The criteria which can be used are what modality is most effective for use. 1) Sensitivity and specificity in diagnosis and prognosis; 2) Management of disease; 3) Low cost. The informed physician must adopt an integrated approach whereby he/she takes these 3 sets of criteria to decide upon an overall menu of diagnostic modalities to be obtained, sometimes resisting the temptation to obtain all even though each might add some data which contributes to the patients well being. The in integrated selection will vary from disease to disease and from patient to patient and from geographic location to geographic location. What is an appropriate integrated selection of neuroimaging modalities may not be the same in the USA as in Austria as in India as in some other country or state given differences in disease processes, patient expectations, medical-legal situation, resources available, health care funding and other considerations.

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