Review Article

Evaluation of Quality of Cytopathological Services in a Rural Teaching Institute - A Critical Review

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ABSTRACT

BACKGROUND: Cytopathology has become an integral part of patient care in medical services today, hence is a need of systematic critical analysis of all activities of cytopathology laboratory for better patient care. However, there is lack of specific data in literature about this issue. **OBJECTIVES:** This study was done with objective of evaluating quality measures in cytopathology services of a rural teaching institute and hence providing recommendation for improvement in various pre-analytical, analytical and post analytical phases. **METHODOLOGY:** All samples received in the month of February, 2011 in department of cytopathology of Krishna institute of medical sciences, Karad, were studied and followed completely from receipt of requisition to dispatch of signed report. **OBSERVATIONS:** Observations were recorded for Pre-analytical parameters viz utility of cytopathology as diagnostic tool, quality of clinical information and adequacy of sample collection and transport. Analytical parameters included cytopreparatory techniques, standards of staining and diagnostic accuracy. Post-analytical parameters were turnaround time, customer satisfaction and costs. Critical analysis for reasons of the results obtained was done and hence specific suggestions or recommendations were formed for improvement. **CONCLUSION:** It was concluded that quality of existing cytopathological services is adversely affected by deficiencies at all the three analytical phases. It was also proposed to re-evaluate the services after implementation of specific recommendations made. We suggest that all cytopathological laboratories must perform similar evaluations to identify their own fields of error and work constantly for improvement. This study provides referral example of such a measure.
KEYWORDS: Quality assessment, Cytopathology

INTRODUCTION

Quality is defined as sum total of features and characteristics of a service that bears on its ability to satisfy the user's needs.[1] Cytopathology has become an integral part of patient care in medical services today; hence there is a need of systematic critical analysis of all activities of cytopathology laboratory for better patient care.

MATERIALS AND METHODS

Study was conducted at Krishna hospital, Karad, with prior permission from the Research Director. Study involved follow up of all the requisitions received in

Cytopathology section, from receipt of specimen or request for FNAC to dispatch of signed out reports, for various parameters in a two months time period. As there are no national standards available for cytology services, we prepared a three tier assessment system, where in, all cases were analyzed under various parameters which were categorized into three groups' viz. pre-analytical, analytical and post-analytical phase. Pre-analytical parameters included utility of cytology as a diagnostic procedure, quality of clinical information provided, adequacy of sample collected and transportation. Analytic phase Parameters included standard of cyto-preparatory techniques, standard of staining and diagnostic accuracy. Post analytical phase parameters included turn-around time (TAT), Customer satisfaction which includes clinical relevance of the report, punctuality; reporting pattern and costs involved. Information was collected through prospective recording of specific data, feedback from cytopathologists and feed back with questionnaire provided to the clinicians. Reasons for deficiencies were noted from time to time.

RESULTS

Out of 84 cases evaluated, overall performance was found to be good in 61% cases, satisfactory in 26% cases and poor in 14% cases.

OBSERVATIONS AND DISCUSSION

A total 84 cases: 35 from FNAC (41.66%), 34 gynac (40.47%) and 15 non-gynac exfoliative cytology (17.85%) cases; were analyzed using three tier system. In preanalytic phase: Utility was found to be very good, as out of 226 biopsies received during the study period, 4 (1.76%) biopsies could have been avoided by using cytology as diagnostic tool. Quality of clinical information provided was unsatisfactory in 58% of cases. Causes of deficiencies included lack of training to the clinical residents and casual attitude while filling up request form. Remedial measures proposed to overcome the deficiencies are to increase awareness amongst clinicians, orientation and instruction to the residents, impart knowledge of scope and limitations of FNAC as a diagnostic procedure to the clinicians. Regarding adequacy 86% of specimens were adequate and representative however causes of inadequacy by FNAC were too small lesions and deep seated lesions. To overcome these, we suggest repeat procedure and use of radiological guidance during FNAC. [2] For Gynac cytology efforts should be made by the clinicians for representative sampling. [3]

In analytic phase parameters: Standard of Cyto-preparatory technique was good in 76.62% of cases. Deficiencies were in the form of delay in processing, wrong labeling and inadequate fixation. Causes of deficiencies included lack of strict standard operative procedures (SOPs) and lack of adequate staff. Remedial suggestions given are strictly follow SOPs, round the clock processing, regular supervision, monitoring and introduction of newer techniques (thin prep). Standard of staining was good in 83.75% of cases. Remedial suggestions to improve staining include Strict SOPs and upgrading instrumentation. Diagnostic accuracy was good in 83% of cases. Causes of deficiencies were focal nature of the lesion, lack of satisfactory communication between cytopathologists and the clinicians. To improve this remedial suggestions are better communication between cytopathologists and the clinicians, regular training and updating of knowledge.

In post analytic phase: Overall turn-around time (TAT) was within 24 hours in 47.61% of cases. In 36.90% of cases, TAT was between 24 to 48 hours, 15.47% cases took more than 48 hours. Reasons for delay

were Inadequate clinical data provided (difficult to understand the clinical problem), referring to patient charts leads to delay, repeat FNAC for sample inadequacy and lot of time needed for transportation at different phases. Suggestions to improve turn-around time are improvement in filling of the requisition forms with adequate clinical data, sample adequacy can be determined at the time of FNAC using toluene blue staining in doubtful cases. Administrative efforts to improve the work place arrangements and a better transport system.

Obvious requirements like adequate staff, enough time for studying slides (by reducing transport time), efficient clerks/typist, good report delivery system allays anxiety of the Pathologist about punctuality, along with regular updating of knowledge by attending CMEs, trainings programs and conferences can help improving the quality and reduce the TAT in cytology services.

Quality control measures like internal quality control should be followed; with random review, rapid re-screening of negative slides, peer review, reporting hierarchy, [4] cyto-histo correlation whenever possible and participation in external quality control programs should be appreciated. [5]

Overall customer satisfaction accessed via feed-back from clinicians, in terms of relevance of report, punctuality, and pattern of reporting; was good in 52.70% of cases, satisfactory in 39.37% of cases and poor in 7.91% of cases. In case of Cost effectiveness, FNAC served the purpose, in time in 45.23% of cases, delayed in 39.28% of cases which prolonged hospital stay of patients and 15.49% cases it was poor.

Overall performance was found to be good in 61% of cases, 26.39% of cases were satisfactory and in 13.29% of cases it was poor.

CONCLUSION

Deficiencies observed in cytology services are universal but some are more severe in rural teaching institute. Quality improvement requires high level of motivation at all levels. Efforts should be made by all, including Cyto-pathologists, Clinicians, technicians and managerial personnel. Re-evaluation of the services after implementation of specific recommendations, continuous monitoring, internal and external quality controls are highly recommended.

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