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A study on Awareness and knowledge about external quality assurance among clinical Biochemistry laboratory technicians in a tertiary care hospital

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Corresponding Author:
Dr. Sekaran Senthilkumaran,
Associate professor, Biochemistry,Chennai medical college,Trichirappalli,Tamilnadu,India, DBlock ,L2Shankar abodes,Kumbakonam salai,Thiruvanaikkoil,, 620005 - India

Submitting Author:
Dr. Senthil Kumaran,
Associate professor, Biochemistry,Chennai medical college,Trichirappalli,Tamilnadu,India, DBlock ,L2Shankar abodes,Kumbakonam salai,Thiruvanaikkoil,, 620005 - India

Other Authors:
Dr. Arokiyasamy Synthia,
Post Graduate Student , Department Biochemistry,Chennai medical college Hospital & Research Centre (SRM Group), Trichirappalli,Tamilnadu,India, 621105 - India

Dr. Arumugam Sundhararajan,
Tutor, Department Biochemistry,Chennai medical college Hospital & Research Centre (SRM Group), Trichirappalli,Tamilnadu,India, 621105 - India

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Author(s): Senthilkumaran S, Synthia A, Sundhararajan A

Abstract

The clinical laboratory technicians should acquire basic knowledge on analysis and interpretations in external quality assurance for improving the quality of reports. The present study is designed to assess the knowledge and interpretation skills on external quality assurance programme laboratory technicians. The training programme was conducted to 10 clinical biochemistry laboratory technicians. The study involves pre test on external quality assurance by standard questionnaires, followed by lecture sessions on external quality assurance. A post test was conducted following the lecture and the pre/post test performance was analyzed. The results shows there was a significant ($p< 0.001$) increases in the score of the marks among the technicians in post test (13.6±1.2) compared to pre test (5.9±1.7). The present study reflects the suboptimol knowledge on external quality assurance among technicians and recommends enriching the laboratory knowledge for technicians to enhance quality of reports.

Introduction

In today's evidence based medicine practice the role of laboratory results is vital for screening, diagnosis and prognosis of the diseases. It is obligatory for laboratory personnel to issue quality reports. The clinical laboratory technical staffs should have the commitment and passion towards updating the knowledge. At the same time there should be available scientific grounds in all the ways of acquiring and updating a sound knowledge on laboratory practices. Quality system practice in the laboratory can be achieved based on good internal quality control and external quality assurance. External quality assurance is a system in which the lab performance is assessed periodically and retrospectively by an independent outside agency to indicate to the laboratory and staff where there may be shortcomings and hence indicates a need for improving and/or changing the Internal quality control procedures [1-2].

The basic knowledge of analysis and interpretation about external quality assurance reports is quiet essential for clinical laboratory technicians. The resource materials for uplifting their knowledge about external quality assurance is very limited. It was found that there was a deficiency in learning about the external quality assurance at the curriculum of undergraduate laboratory training courses itself [3]. The practice of external quality assurance will be more accountable if the laboratory technicians following the proceedings have a basic scientific knowledge about proceedings. With this background the present study aims at assessing the basic knowledge and interpretation skill about the external quality assurance among laboratory technicians and conduct training on the basics of external quality assurance.

Methods

The study was conducted at Chennai medical college hospital and research centre Trichy. Ten laboratory technicians working in the Department of clinical biochemistry were chosen, a pre test was conducted based on the standard questionnaire. Standard questionnaires were prepared based on definition, terminologies, analysis, interpretations, trouble shooting, methodology on external quality assurance programme conducted by Association of clinical biochemist of India, Christian medical college Vellore. The pretest performance was assessed followed by a training programme on external quality assurance. The programme was conducted by clinical Biochemists from the Department of Biochemistry. Following the training a post test was conducted. The data of pretest and post test performance was analyzed using SPSS 19.0 software version.

The questionnaire is as follows,

1. What is EQA?
2. What is the monthly last late for sending EQA's result to the regional centre (CMC vellore)?
3. How will you reconstitute the external Quality

Control sample?
4. How long the QC sample stored after reconstitution?
5. What is VIS ?
6. What is OMVIS ?
7. What is CV ?
8. What is SDI ?
9. What is your interpretation if the OMVIS result for external quality assurance of our lab was 65 for the previous month?
10. How will you interpret and proceed if VIS for creatinine is 229 for the previous month.

Results

From the results figure 1 shows there was a significant (p< .001) increases in the score of the marks of the laboratory technicians in post test (mean 13.6 ±1.2) when compared to pre test (mean 5.9±1.7). There is a significant increase (p< 0.5) was observed in the performance of each individual in the post test when compared to the pretest shown in figure 2. This shows there was a lapse in basic knowledge of external quality assurance among clinical biochemistry laboratory technicians and training programme has improve their knowledge about external quality assurance.

Discussion

Good laboratory practice involves adequately equipping and updating the basic knowledge of technicians [4]. The laboratory technicians are responsible to learn about the laboratory procedures with sound knowledge about the basics and the ability to troubleshoot the issue arising on daily laboratory practice. It is also the duty of chief of the laboratory services and quality managers to update and implement teaching component to the laboratory technicians as an integral part of the laboratory practices [5].

The present study analyses the knowledge of terminologies, basic interpretation, and Technical aspects about the CMC external quality assurance programme. The present study shows that there is lack in basic knowledge about external quality assurance among biochemistry laboratory technicians evidenced by the pretest score(5.9±1.7). To address the lacunae found, a training programme was conducted which imparts the knowledge about the basics of external quality assurance with special emphasis on terminologies, need, technical aspects of handling the materials and trouble shooting on outliers on external quality assurance by experts in clinical Biochemistry. Following the training post test was conducted and the results are analyzed. The mean value was found to be13.6 ±1.2. There was a significant improvement on the performance of the technicians when compared to the pretest (p value < .001)

The present study shows that the training session conducted provided scope for betterment of knowledge among the clinical laboratory technicians. The study was conducted at Chennai medical college hospital and research centre, a tertiary care centre equipped with qualified clinical biochemists. So, the technicians have the accessibility of acquiring their knowledge and skills on external quality assurance. The same holds true for those technicians working in the laboratory accredited for NABL, where continual improvement programme is an integral part of the accreditation programme [6]. But the technicians running a private laboratory set up, satellite labs lacks a common parlance for enriching their knowledge, solving their queries and enhancing the trouble shooting skills. The present study reflects the tip of the iceberg about the competency of analyzing the external quality assurance among the laboratory technicians. Further studies and metaanalysis in this aspect should be done on these settings and based on that, recommendations can be formulated, so as to conduct training sessions, targeted on larger group of technicians.

Refreshment courses, workshops, seminars for laboratory technicians about the importance and implications of external quality assurance should be encouraged [7-8]. This strategy will enrich the knowledge of the technicians and enhance issuing of quality reports.

Conclusion(s)

Laboratory technicians should be uplifted in technical and academic wise to troubleshoot problems and issues in laboratory. Training on external quality assurance will enhance their knowledge and competency skill so as to deliver quality reports.

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Author Contribution(s)

Dr. Senthilkumaran: Planning, Question formatting, assessment and teaching the technicians

Dr. Synthia: Execution of the present study

Dr. Sundhararajan: Stastic and Logistic support

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Illustrations

Illustration 1

Figure

Figure 1: Analysis of pre and post test marks of the laboratory technicians

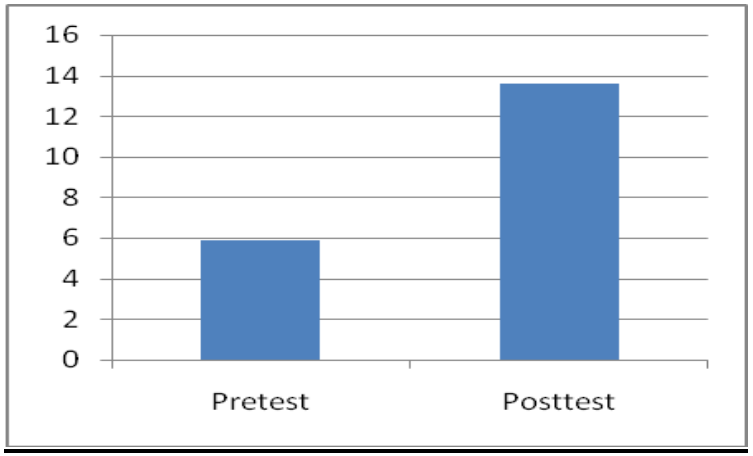

Figure 2: Analysis of individual performance on pre and post test marks