RFP Journal of

Hospital Administration

Corresponding address
Red Flower Publication Pvt. Ltd. 48/41-42 DSIDC, Pocket-II, Mayur Vihar Phase-I, Delhi - 110 091(India)
Phone: 91-11-22754205/45796900, Fax: 91-11-22754205
E-mail: info@rfppl.co.in, Web: www.rfppl.co.in

RFP Journal of Hospital Administration is a print and online journal devoted to publishing research papers in the fields of managing practice and research in all branches of hospital administration and is distributed worldwide. To facilitate rapid publication and minimize administrative costs, IJHA accepts online submission and Email submission. It uses double-blind system for peer-review; both reviewers and authors' identities remain anonymous. Its objective is to promote the reform of the hospital and improve the level of hospital administration. The journal includes areas of papers but not limited to: Healthcare quality and patient safety, Health economics, Health policy, Health services, Clinical ethics, Clinical risk, Health facilities management, Health data management, Healthcare informatics, Nursing management, Clinical department management, Out-patient management, Inpatient management, Health insurance, Hospital accreditation, and Public Health

Subscription (Rates): Annual

India- INR7000, Outside India-USD547

Payment methods

Wire transfer:

Complete Bank Account No. 604320110000467
Beneficiary Name: Red Flower Publication Pvt. Ltd.
Bank & Branch Name: Bank of India; Mayur Vihar
MICR Code: 110013045
Branch Code: 6043
IFSC Code: BKID0006043 (used for RTGS and NEFT transactions)
Swift Code: BKIDINBBDOS

Cheque:
Please send the US dollar check from outside India and INR check from India made:
Payable to 'Red Flower Publication Private Limited'.
Drawn on Delhi branch

PayPal Instructions for the payment (only for transfer from outside India):
Payments can be made through our PayPal account at https://www.paypal.com. Our PayPal recipient email address is redflowerppl@gmail.com.

Bank Address: Do not send cheque or order to this address
13/14, Sri Balaji Shop,Pocket II
Mayur Vihar Phase- I
Delhi – 110 091 (India)

Credit Card:
We accept Visa or MasterCard.

**Please kindly add bank charge at your side if you pay by check or wire transfer.

Please forward all payments, orders and all other order related letters to;

Red Flower Publication Pvt. Ltd.
48/41-42, DSIDC, Pocket-II
Mayur Vihar Phase-I, Delhi - 110 091(India)

Send all Orders to: **Red Flower Publication Pvt. Ltd.,** 48/41-42, DSIDC, Pocket-II, Mayur Vihar Phase-I, Delhi – 110 091(India). Phone: 91-11-22754205, 45796900, 22756995
E-mail: sales@rfppl.co.in, Website: www.rfppl.co.in

RFP Journal of
Hospital Administration

January - June 2019
Volume 3, Number 1

Contents

Subscription Information
Institutional (1 year) INR7000/USD547

Here is payment instruction for your reference.

Check:

Please send the US dollar check from outside India and INR check from India made:
Payable to 'Red Flower Publication Private Limited'.
Drawn on Delhi branch

PayPal Instructions for the payment (only for transfer from outside India):

Payments can be made through our PayPal account at https://www.paypal.com. Our PayPal recipient email address is redflowerppl@gmail.com.

Credit Card:

We accept Visa or MasterCard.

Wire transfer:

Complete Bank Account No. 604320110000467
Beneficiary Name: Red Flower Publication Pvt. Ltd.
Bank & Branch Name: Bank of India; Mayur Vihar
MICR Code: 110013045
Branch Code: 6043
IFSC Code: BKID0006043 (used for RTGS and NEFT transactions)
Swift Code: BKIDINBBDOS

**Please kindly add bank charge at your side if you pay by check or wire transfer.

Payment, orders and all correspondences should be sent to;

Red Flower Publication Pvt. Ltd.
48/41-42, DSIDC, Pocket-II
Mayur Vihar Phase-I
Delhi - 110 091(India)

Original Article

RFP Journal of Hospital Administration
Volume 3 Number 1, January - June 2019

The 360 Degree Appraisal: Quality Indicator For Health Care: A Systematic Review of Quantitative Studies

C. Vasantha Kalyani

How to cite this article:
C. Vasantha Kalyani. The 360 Degree Appraisal: Quality Indicator For Health Care: A Systematic Review of Quantitative Studies. RFP Journal of Hospital Administration. 2019;3(1):5-8.

Abstract

The modern approach to management ensures employee involvement and empowerment. Employees and management admit that many obstacles to achieve organizational goals can be overcome by employees themselves if they are provided the necessary tools and authority to do so. There is a direct relationship between the concept of employee involvement and employee empowerment and organizational growth and development. 360 degree feedback is one of the most powerful mechanisms in the field of performance appraisal process. It involves legitimacy, reliability and responsibility in overall process.

Keywords: 360 degree Appraisal; Quality care; Performance Appraisal; Health Care

Assistant Professor, All India Institute of Medical Sciences, Rishikesh, Uttarakhand 249203, India.

Correspondence and Reprint Requests: C. Vasantha Kalyani, Assistant Professor, All India Institute of Medical Sciences, Rishikesh, Uttarakhand 249203, India.

E-mail: vasantharaj2003@gmail.com

Received on 11.05.2019, **Accepted on** 15.06.2019

Introduction

Performance Appraisal in health service as a positive process to give feedback on performance, to chart their continuing progress, and to identify developmental needs. It is a ongoing scientific cycle essential in view of developmental and educational planning needs of an individual. (NHS 2006).

In NHS a formal appraisal meeting, which usually occurs on an annual basis, is structured around documentation prepared in advance by the appraise and includes: reference to previous years' goals and objectives; information about clinical work, administrative load, teaching, research; participation in audit, quality assurance and CPD and information about relationship with colleagues and patients.

Positive drivers of appraisal include development of a person as a whole for lifelong planning, processes that are consistent with organizational cultural change such as clinical governance and confidential arrangements which are consistent with a learning, not a shaming, culture (Conlon 2003).

The 360 degree appraisal components: The 360 degree appraisal components helpful in identification of features in well managed well integrated system.

Improved Feedback from More Sources: Appraisal obtained from peer group, reporting officer, co-worker and unit supervisors shows evidence in improvement in performance of individual. This saves managerial effort of appraisal of each individual.

Co-worker Appraisal: Appraisal of other individual is important and useful process and how every individual view their job responsibility.

Team Development: This 360 degree appraisal helps team members work efficiently together.

Multi-rater Appraisal: This appraisal provides

each member of team have accountable to every individual of team. It utilizes every individual's efficient input and outcome.

Personal and Organizational Performance Development: 360-degree feedback is one of the best methods for understanding personal and organizational developmental needs. Every employee feels 360 degree appraisal is more appropriate, valid and represents reflective performance of feedback of one's job responsibility.

Training Needs Assessment: The comprehensive information provided through 360-degree appraisal will assist in lieu of carrier improvement and training as per need of individual.

To gain a thorough understanding quality care of health care following questions to answer:

What is the level quality be assured with 360-degree appraisal?

What are the factors influencing 360-degree appraisal?

What is the potential impact of 360-degree appraisal in health care?

Methods

In this study, the search process and study selection guidance suggested by Joanna Briggs Institute (2011 Reviewer's manual) was adopted to minimize the likelihood of bias introduced in the inclusion and synthesis of the data.

This included guidance on identifying relevant literature via electronic and other sources, the stages of the study selection process and the data extraction process. Search strategy.

The both published and unpublished studies on360-degree appraisal in delivering quality health care. The search was implemented in six databases, including PubMed, Embase, CINHAL with no restriction of publishing time.

Piloting search and keywords from the initial papers meeting the inclusion criteria established specific search terms; these terms were used as the basis for the search strategy and used in different combinations for each database. The search terms, which included a combination of index terms such as performance appraisal, 360-degree appraisal, quality healthcare, quality indicator, various techniques of performance appraisal in addition, authors were contacted to identify any unpublished work, and all identified reports and articles were searched for citations of relevant studies.

Grey literature, which included dissertations and theses databases, was also checked for any relevant references. Inclusion criteria were (i) quantitative studies so as to facilitate comparison between them; (ii) peer reviewed research; (iii) aims explicitly addressing 360 degree appraisal,; (iv) studies that used performance appraisal as the main variable and correlated or compared 360 degree with another (a secondary) variable; (v) the setting included any health care institutions; and (vi) the study sample included health care personnel undergone performance appraisal, for example, doctors, health educators, paramedical staff.

The systematic review included English-only articles due to English-only proficiency of the researchers. Screening This studies screened for titles and the subsequent abstracts separately based on the inclusion criteria; any disagreements, at any stage of the screening and selection process. Studies which not measuring 360 performance analysis in health care.

Research that focused on performance in general, including managerial and workforce perspectives, was excluded. Data extraction Data extraction was implemented checked for accuracy by the researcher.

The extracted data included authors; country and journal published; the research purpose and questions; the theoretical framework, study design, settings, participants, sampling methods and setting; measurement instruments; validity and reliability; data analysis method; and findings.

Quality appraisal criteria:

All related studies and articles for retrieval were assessed using a standardized critical appraisal instrument (Cummings et al., 2008) by Brown et al. (2012).

Tool supports to find similar of all studies on features as research design, sampling, intervention tool and statistical analysis; the tool has 13 items with a possible score of 13 points. An overall quality rating was assigned as low (0–4), moderate (5–9) and high quality (10–13).

Data synthesis: Extracted data were synthesized on supported by a content analysis, which refers to the systematic means of categorizing the findings into themes (Brown et al., 2012). Author performed a preliminary synthesis to identify and summarize shared and contested constructs between and across studies.

Data were organized into broad domains for

each research question: the level and the elements of 360-degree performance appraisal, health care services, performance appraisal.

Results

Search terms were highly sensitive, and 2024 titles were identified.

All the titles were checked excluding duplicates and those irrelevant to the aims of the review. In total 100 titles were forwarded to the next stage. If the abstracts of the study titles were relevant to the research topic, they were forwarded to the next stage. All abstracts in the third stage (n=38) was read to assess relevance to the research topic as per inclusion criteria.

A total of 7 were retained and included in the review. Most of the practice settings were described as acute care hospitals and were published between 2000 and 2016. In these studies data collection by using self-reported questionnaires, but only two authors constructed and validated research instruments specifically for 360-degree appraisal in health care (Ramsey, 2014 and Velsoki et al. 2016) Quality assessment In the quality assessment, five were rated as high quality (scores 10–13), and two studies were rated moderate (5–9).

The main strengths of the studies reviewed are as follows: they all were multi center because the samples were drawn from many hospitals covering large regional areas, they had high response rates >60% (5\7), most of them were prospective (2\7) and they retained anonymity of the samples (7\7). Another strength is that they were guided by a theory (3\7) and that they used a reliable and valid instrument for measuring 360 performance appraisal.

In most cases, the studies reported an internal consistency of >70% (5/7). The main weaknesses found are two studies on a probability sample and only three studies seemed to have proper sample size. Regarding the outliers, only two studies explicitly reported how these were managed.

Analysis of the findings

The themes from each study were translated using content analysis; this was achieved by reading the papers to identify systematically recurring themes within and across studies. Themes have four categories addressing each of the research questions of the review.

Table 1: Themes and findings

Themes	Findings
Quality care and 360 degree appraisal	Peer evaluation and consumer's evaluation.
	Consumers level of prognosis in treatment and follow up.
	Availability of resources of health care.
	Proper information regarding disease, symptoms, complication and follow up.
	Develop and educate patient regarding disease, life style changes, follow up
	Offering psychological and emotional support to patients
Factors influencing 360 performance appraisal	Unexpected increase patient volume and acuity, inadequate number of health care personnel, heavy admission or discharge, factors associated with delegation
	Material resources (lack of availability of medications).
	Communication and unbalanced patient assignments
Potential impact of 360 performance appraisal	Regulates quality care by all health care service personnel.
	Improve coordination in patient care
	Improve time management in patient care.
	Better communication about patient care
	Improve communication among health care personnel
	Improvement in knowledge, attitude and practice in management of disease and symptoms.

Discussion

Health care personnel's 360 degree appraisal and feedback requires the right environment, which includes: professional appraisers; properly resourced process, which will protect wastage of time, provide support of each individual to improve their work efficacy, use appraisal outcomes to inform organization strategy and improving the process as it develops practice and work assessment. Practice and work performance assessment is the quantitative assessment of performance based on rates at which patients of health care professionals experience. These outcomes of appraisal and/ or rates at which health care professionals adhere 360 degree appraisal evaluation during holistic care.

Feedback, whether or not part of a formal appraisal system, which can used to communicate an individual's performance in relation to a standard of behavior or professional practice, with various bases for feedback including professional judgment, a local standard, evaluations, report cards and rankings. There is strong evidence that feedback on an individual's performance is associated with improvements in performance and a reduction in errors across all employment sectors. There is also information about the impact of feedback on specific changes to clinical practice.

Health care professionals involvement in 360 degree appraisal, information obtained, duration of feedback, concurrent information such as education, guidelines, reminder systems and incentives on appraisal are important, though their impact is not well documented. The 30 degree appraisal provides insight about the skills and efficiency desired in organization to accomplish the mission, vision, and goals.

Conclusion

The 360-degree appraisal is an effective assessment tool to provide performance feedback from his or her supervisor and from peers, reporting officer, co-workers and customers. The 360-degree feedback tool as a self-assessment allows each individual to understand how his effectiveness as an employee.

References

1. Testa M.R. A model for organization based 360 degree leadership assessment. Leadership & Organization Development Journal. 2002;23(5):260 –68.
2. Rowe C. Introducing 360 degree feedback: the benefits and pitfalls. Executive Development. 1995;8(7):14–20.
3. Jansen P. & Vloeberghs D. Multi-rater feedback methods: personal and organizational implications. Journal of Managerial Psychology. 1999;14(6):455-76.
4. Alexander D.M. How do 360 degree performance reviews affect employee attitudes, effectiveness and performance. Schmidt Labor Research Center Seminar Research Series, 2006.pp.1-11.
5. Morgan A., Cannan K. & Cullinane, J. The 360° feedback: a critical enquiry. Personnel Review, 2005;34(6):663–80.
6. Rensburg T.N. & Prideaux G. Turning professionals into managers using multisource feedback. Journal of Management Development. 2006;25(6):561–71.

Original Article

RFP Journal of Hospital Administration
Volume 3 Number 1, January - June 2019

Comparative Study Between Breathing Exercise and Aerobic Training on Physical Fitness

Neha Gupta[1], Swati Negi[2]

How to cite this article:
Neha Gupta, Swati Negi. Comparative Study Between Breathing Exercise and Aerobic Training on Physical Fitness. RFP Journal of Hospital Administration. 2019;3(1):9-14.

Abstract

Background: Aerobic and breathing exercise in healthy individuals produce various types of physiological responses.

Aim of the study: Comparative study between breathing exercise and aerobic training on physical fitness in healthy individuals.

Materials and Methods: The selected subjects were allocated conveniently to two groups: group A is aerobic and group B is breathing each with 15 subjects. Breathing exercises such as deep breathing, pursed lip breathing and diaphragmatic breathing exercise were performed in supine, sitting, lying crooked and standing with inspiration: expiration ratio 1:1,1:2,1:2:2 for 6 weeks. Aerobic exercise was conducted by rope skipping with moderate intensity exercise. Total exercise duration for 6 weeks was 5 days a week.

Results: Results of the study showed significant in pulse rate, blood pressure a VO_2 max in aerobic group from pre-to post-intervention. It also found that the quality of life was significantly improved from pre-to post-intervention in both the breathing and aerobic group. With respect to the above variables, however, there was statistically significant difference between the two groups, which was significantly increased in aerobic group.

Conclusion: The study was demonstrated that aerobic and breathing exercises are effective in improving physical fitness in healthy individuals. A good physical fitness or cardiorespiratory fitness will help the students to perform all the exercises. Breathing exercise and aerobic training improved cardiorespiratory parameter and quality of life. However, aerobic training has better effect on improving physical fitness with 6 weeks intervention in healthy individuals.

Keywords: Aerobic exercise; Breathing exercise; Systolic and Diastolic Blood Pressure; Pulse Rate and VO_2 max.

[1]Assistant Professor, [2]Final Year Student BPT, Amity Institute of Physiotherapy, Amity University, Sector-125, Noida, Uttar Pradesh 201313, India.

Correspondence and Reprint Requests: Neha Gupta, Assistant Professor, Amity Institute of Physiotherapy, Amity University, Sector-125, Noida, Uttar Prades, 201313, India.

E-mail: neha0628@gmail.com

Received on 25.05.2019, **Accepted on** 15.06.2019

Introduction

Physical activities form an integral part of our lives in today's world. They help to keep our body as well as mind fresh. A good and healthy life style requires a good meal along with physical activity. Also, proper and adequate sleep has its own positive effect. With the modernization people have inculcated in such habits that directly effects their physical health [1]. Physical activity has a positive mental health effect. Studies suggest that physical fitness and problem solving can help preserve mental health. Mental conditions are common among students attending college. Regular physical activity helps to reduce the risk of poor mental health [2]. Lifestyle is one of the major factors which contributes to a number of health conditions nowadays, which may include cardiovascular disease, hypertension, diabetes and obesity [3]. It is necessary to study our lifestyle daily and document it on regular basis. For optimal working capacity and maintaining physical fitness healthy body is very important. Physically fit persons perform activities better than individuals who are not physically fit.

Cardiovascular fitness (CVF) is a function of heart's maximum ability to pump blood and the ability of skeletal muscle to extract and use oxygen. The cardiac output and arteriovenous O_2 both are influenced by genetics and environment. Genetics contribute to heart size, structure and cardiac function variance. Environment has more effect on cardiovascular system than genetics [4]. CVF reduces the risk of various health conditions and may help to cure conditions like asthma [5]. Studies have shown that lack of physical fitness is an important risk factor of mortality in both men as well as women. A poor cardiorespiratory fitness is a major cause of mortality. A study focused that mortality was predicted well by a maximal treadmill test than baseline BMI. One of their previous work says that shifting from unfit to fit has shown significant reduction in mortality rate amongst men [6].

To maintain life, breathing is very important. It is derived from Sanskrit and pranayama, which means breathing evaluation [7]. Regular breathing exercise practice induces variegated types of physiological changes in a healthy individual [8]. In addition, many researchers during their studies are personal for the resurgence of pulmonary function by breathing exercise [9]. Variegated breathing and breathing patterns are practiced on stress management for people, forthe treatment of an uncomfortable disorder and for the modernization of psychological health [10]. As per WHO recommendations 150 minutes of moderate intensity aerobic physical activity is necessary for adults or 75 minutes of vigorous aerobic physical activity. Muscle strengthening should be done twice per week. The meaning of' aerobics is to obtain free O_2, aerobic training is a type of physical activity that can vary from low intensity to high intensity and mediated by aerobic metabolism, i.e. the use of oxygen during exercise to meet the energy requirement [11].

The indirect treadmill method for estimating aerobic capacity called the Rockport 1 mile walk test [12]. The Rockport 1 Mile walk test (1 MWT) was used to assess cardiorespiratory fitness by estimating orpredicting maximum consumption of oxygen in adults. In many samples, the Rockport 1 MWT was cross-validated all that supported the accuracy of this treadmill test to be used by many college and university to evaluate student's aerobic performance. Consequently, during test participation, some students may choose to use different walking techniques that may affect the heart rate and time data used to estimate maximum oxygen consumption of 1 MWT [13]. The current study will help us to determine which out of the two exercises, breathing or aerobic exercises, have a greater impact on physical activity and will then help us to plan out an effective treatment protocol to improve physical fitness. The aim of this study is to compare the effectiveness of breathing exercises and aerobic exercises on physical fitness in healthy individuals.

Methodology

The study design was Comparative. The study consisted of 30 healthy college students of both gender**,** Data was collected from Amity University from Amity Institute of Physiotherapy was taken with age group of 18-25 years in which 15 subjects who performed Aerobic training and other 15 subjects who performed Breathing exercises. participants with any diabetes mellitus, any history of respiratory disorder, cardiovascular disorder, neurophysiological and musculoskeletal disorder were excluded. The participants were chosen based on within the age group 18-25 years, Non-smokers, Normal BMI (i.e. 18.5 – 24.9), Pulse rate between 60-100 bpm and Blood Pressure within 110/70 mmHg to 140/90 mmHg were selected. The independent variables of the study are Aerobic exercises and Breathing exercises and dependent variables of the study are Systolic BP, Diastolic BP, Pulse Rate and VO_2 max respectively.

Procedure: General assessment of the subjects was performed to shortlist the participants meeting selection criteria. The subjects were explained about the procedure and the purpose of the study. Height was measured and recorded with the help of markings on the wall, made by measure tape. Weight was measured through weighing machine. Pulse rate was measured with the help of pulse oximeter and blood pressure was measured using sphygmomanometer respectively.

For measuring the VO_2 max, the subject was asked to perform the Rockport 1 mile walk test for using the treadmill. So, pre-intervention value of blood pressure and pulse rate was measured using sphygmomanometer and pulse oximeter respectively. Subjects was asked to walk on treadmill for 1 mile in their normal speed. The time taken by the subject to complete 1 mile was recorded. VO_2 max was calculated by Rockport 1MWT formula.

The subjects were then be randomly assigned into 2 groups with 15 subjects each: Group A performed Aerobic exercises and Group B performed Breathing exercises. Both breathing and aerobic exercise were

Rockport 1MWT formula used for measuring VO_2 max [14].

VO_2 max (ml/kg/min) = 132.853 - (0.0769 * weight) - (0.3877 * age) + (6.3150 * gender) – (3.2649 * time) – (0.1565 * heart rate/pulse rate).

Where weight is in kg, gender is 0 for female and 1 for male, time is in minutes for 1mile walk and pulse rate is in beats per minute.

performed in three phases, each phase consisted of two weeks. The aerobic exercises were conducted by rope skipping with moderate intensity exercise. The exercise duration was 15, 20 and 30 minutes respectively in phase 1, 2 and 3. For a total duration of 6 weeks, groups are told to exercise 5 days in a week. After 6 weeks reading of post-Rockport 1MWT was taken of following variables: blood pressure, pulse rate, and value of VO_2 max. After the whole procedure comparison between the before training program variables and after training program variables in group A was done. Breathing exercises used were deep breathing, pursed lip breathing, and diaphragmatic breathing exercise were performed in the first phase in supine lying, sitting and standing position with 1:1 (expiration: inspiration) for 15 minutes the exercise was performed. In the second and third phases in following position: supine, sitting, standing and crook lying but inspiration: expiration in the second phase of 1:2 for 15 minutes the exercise was performed. There was a breath retention time in the third phase, so inspiration: breath retention: the expiration ratio was 1:2:2 and the total exercise duration was 30 minutes. For a total duration of 6 weeks, groups are told to exercise 5 days in a week. After 6 weeks reading of post-Rockport 1MWT was taken for blood pressure, pulse rate and value of VO_2 max. After the whole procedure comparison between the before training program readings and after training program readings in group A was done. Readings of Group A and Group B were compared with each other after the procedure in both phases, both before training program and after training program.

Data Analysis

Statistical analysis was performed to find out comparison between Aerobic training and Breathing exercises on physical fitness in healthy individuals among college going students. The different statistical measured were used including mean, variance, standard deviation, t- Test: Paired Two Sample for Means and t-Test: Two-Sample Assuming Unequal Variances. The analysed to the data from Microsoft excel.

Results

Demographic details of the participants

A combined number of 30 participants participated in the study that comprised 8 females and 22 males. Out of the 15 participants in group A and other 15 participants in group B. The mean ± SD age of the subjects was found to be 21.33 ± 0.48 years, the mean ± SD body mass index of the subjects was found to be 21.06 ± 1.84 kg/cm^2, the mean ± SD systolic blood pressure was found to be 124.47 ± 7.07 MmHg, the mean ± SD diastolic blood pressure was found to be 78.53 ± 5.57 MmHg, mean ± SD pulse rate was found to be 113.13 ± 15.19 bpm and the mean ± SD VO_2 max of the subjects was found to be 64.43 ± 18.58 ml/kg/min.

Physical Fitness Measurement

T-stat value was calculated at p value = <0.05. Table 1 shows unaired t-test between group A and

Table 1: Shows intragroup comparison between group A and group B (after training program)

Variables	Mean		Variance		T stat	T critical	significance
	A Group	B Group	A Group	B Group			
Systolic BP	127.33	117.26	35.23	27.20	4.93	2.04	Significant
Diastolic BP	84.66	78.06	12.38	16.49	4.75	2.05	Significant
Pulse rate	128.40	110.80	195.11	276.74	3.13	2.05	Significant
vo2 max	93.26	61.60	198.92	336.40	5.30	2.05	Significant

Table 2: Shows comparison between inter group A

Variables	Mean		Variance		T stat	T critical	Significance
	BTP	ATP	BTP	ATP			
Systolic BP	121.60	127.33	50.68	35.23	-2.54	2.14	Significant
Diastolic BP	79	84.66	44	12.38	-3.29	2.14	Significant
Pulse rate	112.53	128.40	205.55	195.11	-5.20	2.14	Significant
vo2 max	67	93.26	301.42	198.92	-6.19	2.14	Significant

Table 3: Shows comparison between inter group B

Variables	Mean		Variance		T stat	T critical	Significance
	BTP	ATP	BTP	ATP			
systolic BP	126	117.26	54.28	27.20	3.19	2.14	significant
Diastolic BP	78.06	78.06	19.78	16.49	0	2.14	Not significant
Pulse rate	113.53	110.80	265.40	276.74	1.01	2.14	Not significant
vo2 max	61.86	61.60	399.26	33.40	0.25	2.14	Not significant

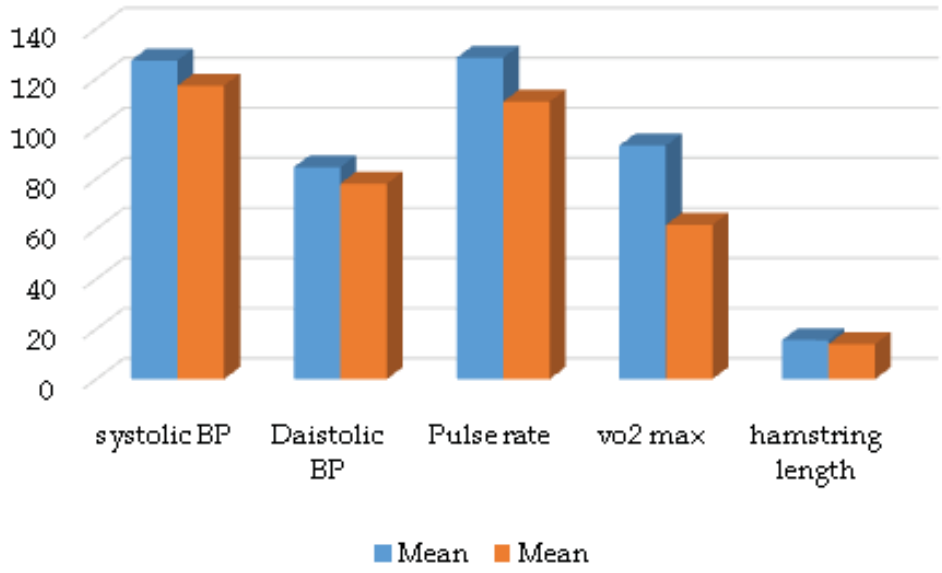

Fig. 1: Changes after 6 weeks follow-up

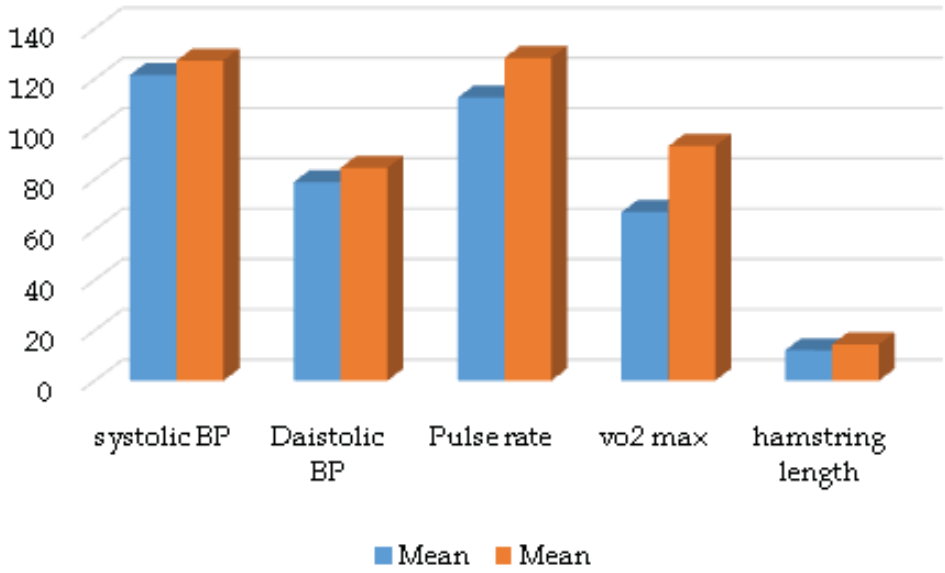

Fig. 2: Changes in between inter group A

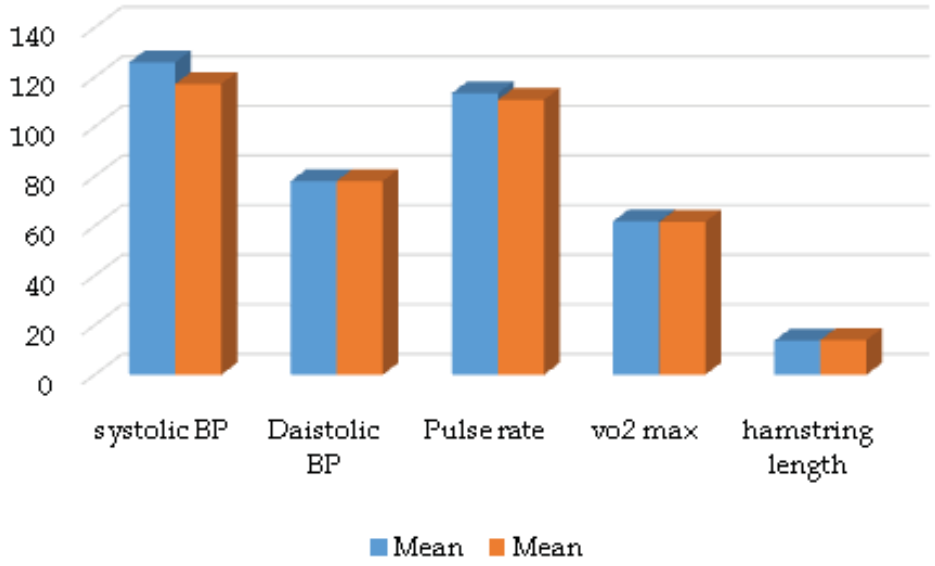

Fig. 3: Changes in between inter group B

group B; all variables show significant changes. Table 2 shows paired t-test among group A; all variables showa significant change. Table 3 show the results of paired t-test among group B.

Discussion

Physical fitness is associated with better academic performances. The individuals who are regularly active have a better and healthy adulthood. As per WHO recommendations 60 minutes of physical activity daily is must for all [11]. Physical activity can make anyone healthier, happier and smarter. Physical fitness alone cannot lead to a healthy and happy life. In many stages we are faced with problems and we need to find an optimal solution to deal with it. One of the most important components of overall physical fitness is aerobic (or cardiovascular) fitness [5]. It reflects the amount of oxygen pumped by the heart in the blood and transported to the working muscles, as well as the effectiveness of the muscles in the use of that oxygen [6].

The present study was conducted to find the comparison between aerobic training and breathing exercise on physical fitness in healthy individuals. For several reasons, aerobic exercise is essential to muscle health. Your heart rate increases during aerobic exercise and your blood flows faster, bringing more oxygen between your lungs and muscles. Aerobic activity helps promote overall health, which in turn makes muscle health easier to maintain and improve the aerobic capacity [15].

Each system in the body is based on oxygen. Effective breathing can not only give you a greater sense of mental clarity from cognition to digestion, it can also help you sleep better, digest food more efficiently, maintain physical fitness, improve the immune response of your body, and reduce stress levels [12].

In this study 30 subjects were selected based on the inclusion and exclusion criteria. The study included two groups: group A is aerobic group and group B is breathing group and included 2 phases:

Before training program perform the Rockport 1mwt for using the treadmill and Subjects was asked to walk on treadmill for 1 mile walk in their normal speed and then measured blood pressure, pulse rate, VO_2 max and hamstring length. After the phase 1 subjects was given 6 weeks duration for the exercises.

Aerobic exercise was conducted by rope skipping with moderate intensity exercise. The exercise duration was 15 minutes, 20 minutes and 30 minutes respectively in phase 1, 2 and 3. For a total duration of 6 weeks, groups are told to exercise 5 days in a week. After 6 weeks reading of post-Rockport 1MWT was taken of following variables: blood pressure, pulse rate, hamstring length and value of VO_2 max. After the whole procedure comparison between the before training program readings and after training program readings in group A was done.

Breathing exercises such as deep breathing, pursed lip breathing and diaphragmatic breathing exercise were performed in the first phase in

supine lying, sitting and standing position with 1:1 (expiration: inspiration) for 15 minutes the exercise was performed. Breathing exercise was performed in the second and third phases in following position: supine, sitting, standing and crook lying but inspiration: expiration in the second phase of 1:2 for 15 minutes the exercise was performed. there was a breath retention time in the third phase, so inspiration: breath retention: theexpiration ratio was 1:2:2 and the total exercise duration was 30 minutes. For a total duration of 6 weeks, groups are told to exercise 5 days in a week. After 6 weeks reading of post-Rockport 1MWT was taken of following variables: blood pressure, pulse rate, hamstring length and value of VO_2 max. After the whole procedure comparison between the before training program readings and after training program readings in group A was done. Readings of Group A and Group B were compared with each other after the procedure in both phases: before training program and after training program.

However, aerobic training has better effect on physical fitness and improvement in VO_2 max with 6 weeks intervention in healthy individuals.

Conclusion

The study was conducted to check comparison between aerobic training and breathing exercises on physical fitness in healthy individuals. However, aerobic training has better effect on physical fitness and improvement in VO_2 max with 6 weeks intervention in healthy individuals.

Conflict of Interest: Nil

Funding: The study was funded by the authors.

References

1. Adolphe Abrahams memorial lecture. Exercise and lifestyle change. Shepherd RJ. Br J Sports Med. 1989 Mar;23(1):11-22.
2. Hamer M, Stamatakis E, Steptoe A. Dose- response relationship between physical activity and mental health- the Scottish Health Survey. Br J Sports Med. 2009 Dec;43(14):1111-4.
3. Hulens M, Vansant G, Claessens A.L. Health related quality of life in physically active and sedentary obese women. Am. J. Hum. Biol. 2002;14(6):777-85.
4. Bouchard C, Malina R, Perusse, L. Genetics of Cardiorespiratory Fitness Phenotypes. In: Genetics of Fitness and Physical Performance. Champaign, IL: Human Kinetics; 1997.pp.243-66.
5. Amusa L.O., Goon D.T. Health-related physical fitness among rural primary school children in Tshannda, South Africa Scientific Research and Essays. 2011;6(22):4665-80.
6. Steven N. Blair, Harold W. Kohl III; Ralph S. Paffenbarger Jr, Larry W. Gibbons. Physical Fitness and All-Cause Mortality a Prospective Study of Healthy Men and Women. JAMA. 1989;262(17):2395-2401.
7. Blessy V, Sayyad R, Yadav PK, Kar SK. Effect of breathing exercises on pulmonary function tests in healthy adults. Journal of Clinical and Biomedical Sciences. 2014;4(1):226–29.
8. Dhungel KU, Malhotra V, Sarkar D, Prajapati R Effect of alternate nostril breathing exercise on cardiorespiratory functions. Nepal Med Coll J. 2008;10(1):25–27.
9. Joshi LN, Joshi VD, Gokhle LV. Effect of short-term pranayama practice on breathing rate and ventilatory functions of lung. Indian J of physio and pharmacol. 1992;36(2):105–08.
10. Sharma VK, Trakroo M, Subramaniam V, Bhabani AB, Sahay A. Effect of fast and slow pranayama on perceived stress and cardiovascular parameters in young health care students. International journal of yoga. 2013;6(2):104–10.
11. Plowman SA, Smith DL. Exercise physiology for Health, Fitness, and performance. 2nd ed. Lippincott William and Wilkins. 2007.
12. Olaf Verschuren et al. Reliability and validity of data for 2 newly developed shuttle run tests in children with cerebral palsy. 2006 March 16.
13. Kuisis. SM 2003 modification of 20MST for ice hockey, university of pretoria pages 1-2.
14. Chtristoper Paul Keller. Validation of the 1MWT in young adults at maximal and submaximal walking intensities. Master of science in health and human development, Montana University. 2002.
15. Willis HL, Slentz CA, Bateman LA et al. Effects of aerobic and /or resistance training on body mass and fat mass in overweight or obese adults. Journal of applied Physiology. 2012;113(12):1831–37.

Review Article

RFP Journal of Hospital Administration
Volume 3 Number 1, January - June 2019

Establishment of a Postmortem Centre Mortuary - II: Manpower and Human Resource Management

Abhishek Yadav[1], Kulbhushan[2], Antara Debbarma[3], Sudhir K Gupta[4]

How to cite this article:
Abhishek Yadav, Kulbhushan, Antara Debbarma et al. Establishment of a Postmortem Centre Mortuary - II: Manpower and Human Resource Management. RFP Journal of Hospital Administration. 2019;3(1):15-19.

Abstract

The doctors and staff are an important pillar of Mortuary Management. Their work and attitude directly affects not only the legal system but also the humanitarian aspects of the society. If we expect the highest quality of Medicolegal work and a sympathetic attitude towards the relatives of deceased, then we have to provide the recommended manpower not only in numbers but also in quality. Human resource and manpower management is equally important in a Mortuary Setup in a Hospital setup as important as the infrastructure. Though the Mortuary holds a very vital position but in most of the Hospitals as a bridge between the Medical system and legal system but still the demand for the requisite manpower is often overlooked. The authors in this article aim to detail the staffing pattern and their job responsibilities in the Mortuary. The recommended welfare measures of the staff are also included in the article.

Keywords: Mortuary Management; Employee welfare; Postmortem; Autopsy Surgeon; Forensic Medicine.

[1,2]Assistant Professor, [3]Senior Medical Officer, [4]Professor and Head, Department of Forensic Medicine and Toxicology, All India Institute of Medical sciences (AIIMS), New Delhi 110029, India.

Correspondence and Reprint Requests: Abhishek Yadav, Assistant Professor, Department of Forensic Medicine and Toxicology, All India Institute of Medical sciences (AIIMS), New Delhi 110029, India.

E-mail: drayad_in@yahoo.com

Received on 04.06.2019, **Accepted on** 18.06.2019

Introduction

Most of the Mortuaries in our country are severely understaffed not only in the quantity of personnel but also in quality of trained manpower. Human resource and manpower management is equally important in a Mortuary Setup in a Hospital setup as important as the infrastructure. The authors in their first article in this series deliberated upon the basic infrastructure of Establishment of a Postmortem Centre Mortuary in the July to Dec 2018 issue of this Journal [1]. Just constructing the building and providing equipments will not serve the public interests till there is trained and professional manpower [2]. The shortage of manpower is not only limited to the doctors but also there is gross shortage of trained paramedical staff also. Though the Mortuary holds a very vital position but in most of the Hospitals as a bridge between the Medical system and legal system but still the demand for the requisite manpower is often overlooked. In continuation in the series of article regarding Mortuary mangement [1], the authors in this article aim to detail the staffing pattern and their job responsibilities in the Mortuary. The recommended welfare measures of the staff are also included in the article.

Standardization of Human Resource Including Doctors and Support Staff [3,4,5].

A basic outline of required number of staff was recommended in guidelines issues by Directorate General of Health services, Ministry of Health and

Family Welfare, Government of India in 2014 [3] but the authors are pained to submit that even after 5 years the recommended Manpower is still not present in Most of the Mortuaries. The staffing of a mortuary depends on the size of the hospital and the complexity of the operations. Besides doing their Medicolegal duties the doctors had to attend the Courts of Law for giving Expert evidence to prove their reports. And also new aspects like Forensic Histo-pathology, Virtual Autopsy, Forensic radiology, Toxicology Lab, DNA LAB are emerging in the field of Forensic Medicine. So, considering the new development and applied aspects of forensic Medicine, the following uniform staff is recommended:

1. Faculty Member/Specialists [M.D. Forensic Medicine] -2.
2. Senior/Junior resident Doctors-2
3. Mortuary/Post mortem/Lab Technician -1
4. Clerk/ Steno / Data Entry Operator -2
5. Medical record Keeper/Technician-2
6. Technician-Biochemistry
7. Technician-Histo-Pathology)-1
8. X-Ray Technician-1
9. Morgue attendants-5
10. Post mortem Assistant -2
11. Trained Photographer-1
12. Store Officer-1
13. Sanitary attendant/Multipurpose worker -12
14. Peon -2
15. Guard- 4

For every additional 100 autopsies or part thereof, per year following additional staff is recommended:

1. Faculty Member/Specialists [M.D. Forensic Medicine] -1
2. Senior Resident-1
3. Junior resident-1
4. Post mortem Assistant -2
5. Sanitary Attendants-2

Additional personnel, required to run the Toxicology and DNA Lab:

1. Scientist for Toxicology.
2. Scientist for DNA.

Job Responsibility [4,5]

The Job responsibilities of Various Cadres of the staffing of the Mortuary should be clearly defined so as to have an effective and cordial working atmosphere. However, the technical staff should be having the basic knowledge of all the labs/ record section so as to undertake the work of each other in cases of work exigency and leaves. Keeping in view the rapid modernization and computerization, the aim should be to make all the staff well trained in basic computer knowledge and functioning. The recommended brief Job responsibility of every officer is as follows.

1. Faculty Members/ Specialists

Every day one Faculty/ Specialists acts as Consultant on duty for Postmortem, embalming and Medicolegal work to guide and supervise the cases if required by the resident doctors. One faculty should be designated as Mortuary Incharge for day to day supervision and administrative work of mortuary.

2. Senior and Junior Residents

The senior residents should work as nodal officer in the functioning of day-to-day medicolegal work of the department. The Investigating Officer reports to the senior resident doctors on duty for postmortem or Medicolegal examination who then proceed depending upon the gravity of the case.

3. Mortuary/Postmortem/Lab Technician

The Mortuary Technician is a Lab Technician posted in the mortuary with the following job responsibilities:

- To assist in the preservations of specimens during postmortem.
- To assist in embalming and maintaining the records of chemicals.
- To maintain all the files and records pertaining to mortuary equipments/ Instruments.
- To ensure the availability of daily usage items through Hospital or Departmental store.
- To supervise and monitor the work of Morgue attendants.
- To coordinate and keep liaison with the engineering departments/ Service engineers for any problems in the equipments.

4. Clerk/Steno/ Data Entry operator

- To make entry of cases for postmortem in the PM register.

- To maintain the PM records of the current year.
- To handle all the written administrative communication and maintain their records.
- To maintain all the files and records pertaining to mortuary.

The work of the PM technician and Clerk are overlapping and can be mutually undertaken in case of staff shortage/unavailability.

5. Mortuary Record Technician

- To maintain the records of all the Postmortem/Medicolegal cases made in the Mortuary.
- To keep record of Postmortem reports and their receiving by the police.
- To handle the subsequent opinion in PM and MLC cases and maintain their records.
- To look after the work of Mortuary Technician or Clerk in their absence.
- To attend the Court summons when required to produce the official records.

6.Technicians-Radiology/Histopathology/Biochemistry

- To maintain all the record of chemicals and equipments present in their respective labs.
- To act as the Chief custodian of their labs and ensuring maintenance, cleanliness and periodic disinfection of the labs.
- To take the custody of samples generated during autopsy and ensure the proper labeling, processing and reporting of the results.
- To maintain all the files and records pertaining to the sample processed in their labs mortuary equipments/Instruments.
- To coordinate and keep liaison with the engineering departments/ Service engineers for any problems in the labs.

7. Morgue Attendants

Morgue attendants are the first person who interact with police and public and have a very important role in Mortuary management. A minimum of five morgue attendants should be present in a Mortuary as a morgue attendant is required to be posted round the clock. So to give 24 hours coverage in a shift based duty schedule four morgue attendants will be required and One morgue attendant is posted in general duty hours to help in postmortem work and also as a replacement on leave. Their job responsibilities are:

- To receive and hand over the body to the police in MLC cases and to the relatives.
- To ensure the proper identification of the body and the recipient, both at the time of receiving and handing over of the body.
- To ensure swift transportation of the bodies from the hospital to the mortuary.
- To properly preserve the body in the cold chamber and maintain the respect and the dignity of the dead.
- To keep the cold chambers under lock and key.
- To maintain the record of bodies coming to the Mortuary in the register.
- To monitor the temperature of the cold chambers and their upkeep.
- To ensure the cleaning of mortuary premises by sanitary attendant.
- To ensure the disinfection of the mortuary hall by weekly washing, fumigation etc.
- To assist the Mortuary Technician in his duties.

8. Postmortem Assistant

- To maintain the disinfection of the autopsy instruments.
- To assist the autopsy surgeon in the postmortem examination, preservation of viscera, labeling, handing over to police etc.
- To maintain the Dignity of Dead bodies while handing over to the relatives.

9. Photographer

- To take the photographs and videography of the postmortem proceedings as and when required by Autopsy Surgeon.
- To maintain the proper filing and preservation of soft copies of Photo/Videography.
- To follow the guidelines of National Human rights Commission regarding Photography and videography.
- To assist in the Departmental academic activities.

10. Store Officer

- To assess the yearly requirement of consumables in Mortuary.
- To procure the Consumable and non consumable products as per the General Finance rules, applicable in the Hospital/ Institute.
- To ensure timely delivery of essential instruments and chemicals like scalpel, protective clothing, disinfection chemicals etc so as to ensure smooth functioning of Mortuary.
- To maintain the stock and indent registers as per rules for auditing.

11. Sanitary Attendants/Multipurpose workers

Sanitary attendants are backbone of the Mortuary in terms of cleaning, hygiene and disinfection. The term Sanitary Attendants have been replaced by concept of multipurpose worker so their work domain has shifted beyond just cleaning job.

- To maintain cleanliness and hygiene in mortuary.
- To clean the autopsy hall after PM examination.
- To assist and follow the instructions of the morgue attendants and Mortuary technician in handling and shifting of dead bodies.

12. Security

Mortuary deals with Medicolegal Criminal cases and is a very sensitive area where relatives are already agitated and aggrieved, emotions run high and anytime an untoward incident can be precipitated. A highly vigilant and tight security is required in the Mortuary. Now a days most of the Hospitals have outsourced the security services. The security should strictly enforce to prevent any unauthorized access in the working area. The access of general public and also police officer who are not attached with the case has to be curtailed at the reception only where their queries will be addressed by the Morgue Attendants.

13. Peon

Peon are required to maintain to handle incoming and outgoing communications.

Employee Welfare

An efficient and cordial working environment leads to high productivity. A happy employee will be working with more dedication and honesty. Mortuary doctors and staff deal with medicolegal criminal cases, dead bodies and aggrieved relatives in their routine course of duties. This could have a negative impact on the psychology of a person. Also the doctors and staff are working in a highly contagious environment which predisposes them to several infections both Blood borne and Air borne. So the authors by their experience suggest the following measures which should be implemented mandatorily by the Hospital administration

1. Periodic Health Check-up and Immunization
   i. The Mortuary staff including the doctors should have a pre-employment check-up including the blood tests for status of the HIV, HBsAg and HCV.
   ii. The Immunization status of all the Mortuary staff should be checked before posting.
   iii. Mandatory Medical Check-Up every six month is recommended for all the staffs for blood borne and respiratory infections including the routine blood tests like LFT, KFT, Lipid Profile.
2. The shortage of the doctors and staff in Mortuary is also due to lack of willingness and social taboo in our society. Nobody wants to be associated with the dead body work. So, Postmortem Allowances should be given to staff and doctors so as to encourage them to work with Enthusiasm in the mortuary.
3. The Mortuary Staff has to work in a negative environment which may also affect their attitude towards life. So, a yearly psychological assessment should be made mandatory for all the personnel which should be included in their service records.
4. The Mortuary personnel should have positive reinforcement activities in their curriculum.
5. A grievance redress mechanism should be in place to resolve the conflicts/complaints between the employees.

Conclusion

The doctors and staff are an important pillar of Mortuary Management. Their work and attitude directly affects not only the legal system but also the humanitarian aspects of the society. If we expect the highest quality of Medicolegal work and a sympathetic attitude towards the relatives of deceased, then we have to provide the recommended manpower not only in numbers but also in quality.

Conflict of Interests: Nil

Funding: Not required

References

1. Yadav A, Abilash S, A Debbarma, SK Gupta. Establishment of A Postmortem Centre Mortuary-I: Basic Infrastructure. Indian Journal of Hospital Administration. 2018;2(2):67-72.
2. Rajkumar. Mortuary at RIMS need kiss of life. The Telegraph, Online edition. 2017 May 3. [Internet]. [Cited 2019 June 04]. Available from; https://www.telegraphindia.com/states/jharkhand/mortuary-at-rims-needs-kiss-of-life/cid/1351462.
3. Management of Mortuaries. Directorate General of Health services. Ministry of Health and Family Welfare. Government of India. 2014 March 27.
4. Gupta SK, Yadav A. Mortuary Manual. Department of Forensic Medicine, AIIMS, New Delhi; 2018.
5. Facilities for Mortuary and Post-Mortem Room Services; Design and briefing guidance. Scottish Health Planning Note 20. National Health Service Scotland. Property & environment forum. January 2002.

Revised Rates for 2019 (Institutional)

Title of the Journal	Frequency	India(INR) Print Only	India(INR) Online Only	Outside India(USD) Print Only	Outside India(USD) Online Only
Dermatology International	Semiannual	5500	5000	430	391
Gastroenterology International	Semiannual	6000	5500	469	430
Indian Journal of Anatomy	Quarterly	8500	8000	664	625
Indian Journal of Anesthesia and Analgesia	Bi-monthly	7500	7000	586	547
Indian Journal of Cancer Education and Research	Semiannual	9000	8500	703	664
Indian Journal of Communicable Diseases	Semiannual	8500	8000	664	625
Indian Journal of Dental Education	Quarterly	5500	5000	430	391
Indian Journal of Diabetes and Endocrinology	Semiannual	8000	7500	597	560
Indian Journal of Genetics and Molecular Research	Semiannual	7000	6500	547	508
Indian Journal of Hospital Administration	Semiannual	7000	6500	547	508
Indian Journal of Hospital Infection	Semiannual	12500	12000	938	901
Indian Journal of Medical & Health Sciences	Semiannual	7000	6500	547	508
Indian Journal of Pathology: Research and Practice	Bi-monthly	12000	11500	938	898
Indian Journal of Preventive Medicine	Semiannual	7000	6500	547	508
International Journal of Neurology and Neurosurgery	Quarterly	10500	10000	820	781
International Physiology	Triannual	7500	7000	586	547
Journal of Cardiovascular Medicine and Surgery	Quarterly	10000	9500	781	742
Journal of Global Medical Education and Research	Semiannual	5900	5500	440	410
Journal of Global Public Health	Semiannual	12000	11500	896	858
Journal of Microbiology and Related Research	Semiannual	8500	8000	664	625
Journal of Plastic Surgery and Transplantation	Semiannual	26400	25900	2063	2023
Journal of Orthopedic Education	Triannual	5500	5000	430	391
Journal of Pharmaceutical and Medicinal Chemistry	Semiannual	16500	16000	1289	1250
Journal of Practical Biochemistry and Biophysics	Semiannual	7000	6500	547	508
Journal of Radiology	Semiannual	8000	7500	625	586
New Indian Journal of Surgery	Bi-monthly	8000	7500	625	586
Ophthalmology and Allied Sciences	Triannual	6000	5500	469	430
Otolaryngology International	Semiannual	5500	5000	430	391
Pediatric Education and Research	Quarterly	7500	7000	586	547
Physiotherapy and Occupational Therapy Journal	Quarterly	9000	8500	703	664
Urology, Nephrology and Andrology International	Semiannual	7500	7000	586	547
Indian Journal of Maternal-Fetal & Neonatal Medicine	Semiannual	9500	9000	742	703
Indian Journal of Obstetrics and Gynecology	Quarterly	9500	9000	742	703
Indian Journal of Emergency Medicine	Quarterly	12500	12000	977	938
Indian Journal of Trauma and Emergency Pediatrics	Quarterly	9500	9000	742	703
Journal of Emergency and Trauma Nursing	Semiannual	5500	5000	430	391
Indian Journal of Forensic Medicine and Pathology	Quarterly	16000	15500	1250	1211
Indian Journal of Forensic Odontology	Semiannual	5500	5000	430	391
Indian Journal of Legal Medicine	Semiannual	8500	8000	664	625
International Journal of Forensic Sciences	Semiannual	10000	9500	781	742
Journal of Forensic Chemistry and Toxicology	Semiannual	9500	9000	742	703
Community and Public Health Nursing	Triannual	5500	5000	430	391
Indian Journal of Surgical Nursing	Triannual	5500	5000	430	391
International Journal of Pediatric Nursing	Triannual	5500	5000	430	391
International Journal of Practical Nursing	Triannual	5500	5000	430	391
Journal of Gerontology and Geriatric Nursing	Semiannual	5500	5000	430	391
Journal of Nurse Midwifery and Maternal Health	Triannual	5500	5000	430	391
Journal of Psychiatric Nursing	Triannual	5500	5000	430	391
Indian Journal of Ancient Medicine and Yoga	Quarterly	8000	7500	625	586
Indian Journal of Law and Human Behavior	Semiannual	6000	5500	469	430
Indian Journal of Medical Psychiatry	Semiannual	8000	7500	625	586
Indian Journal of Biology	Semiannual	5500	5000	430	391
Indian Journal of Library and Information Science	Triannual	9500	9000	742	703
Indian Journal of Research in Anthropology	Semiannual	12500	12000	977	938
Indian Journal of Waste Management	Semiannual	9500	8500	742	664
International Journal of Political Science	Semiannual	6000	5500	450	413
Journal of Social Welfare and Management	Triannual	7500	7000	586	547
International Journal of Food, Nutrition & Dietetics	Triannual	5500	5000	430	391
Journal of Animal Feed Science and Technology	Semiannual	7800	7300	609	570
Journal of Food Additives and Contaminants	Semiannual	5000	4500	391	352
Journal of Food Technology and Engineering	Semiannual	5000	4500	391	352
Indian Journal of Agriculture Business	Semiannual	5500	5000	413	375
Indian Journal of Plant and Soil	Semiannual	6500	6000	508	469

Terms of Supply:

1. Agency discount 12.5%. Issues will be sent directly to the end user, otherwise foreign rates will be charged.
2. All back volumes of all journals are available at current rates.
3. All Journals are available free online with print order within the subscription period.
4. All legal disputes subject to Delhi jurisdiction.
5. Cancellations are not accepted orders once processed.
6. Demand draft / cheque should be issued in favour of "**Red Flower Publication Pvt. Ltd.**" payable at **Delhi**
7. Full pre-payment is required. It can be done through online (http://rfppl.co.in/subscribe.php?mid=7).
8. No claims will be entertained if not reported within 6 months of the publishing date.
9. Orders and payments are to be sent to our office address as given above.
10. Postage & Handling is included in the subscription rates.
11. Subscription period is accepted on calendar year basis (i.e. Jan to Dec). However orders may be placed any time throughout the year.

Order from

Red Flower Publication Pvt. Ltd., 48/41-42, DSIDC, Pocket-II, Mayur Vihar Phase-I, Delhi - 110 091 (India),

Mobile: 8130750089, Phone: 91-11-45796900, 22754205, 22756995 E-mail: sales@rfppl.co.in, Website: www.rfppl.co.in

Review Article

RFP Journal of Hospital Administration
Volume 3 Number 1, January - June 2019

Digital Virtual Autopsy: Need of the Hour in India

Arijit Dey[1], Neha Sharma[2], Abhishek Yadav[3], Kulbhushan Prasad[4], Sudhir K. Gupta[5]

How to cite this article:
Arijit Dey, Neha Sharma, Abhishek Yadav et al. Digital Virtual Autopsy: Need of the Hour in India. RFP Journal of Hospital Administration. 2019;3(1):21-24.

Abstract

Autopsy includes a thorough examination of a cadaver related to cause and manner of death. Digital autopsy refers to the use of modern medical imaging and computer technologies to obtain the images of internal body structures and organs of human body in a non-invasive or minimally invasive manner, detect the injuries, diseases and other morphological changes in human body, and provide the evidence to determine the cause and manner of death. Compared to traditional technologies, post-mortem forensic imaging methods are non-invasive, repeatable and are more conducive to resolving the key issues in several cases. It is being applied in few developed countries such as Switzerland, England, USA, Japan, etc. and is rapidly gaining importance. It can be used judiciously in estimating time since death, establishing identity of an individual, for age and sex determination, sudden death cases, road traffic accident cases, asphyxial deaths, death due to thermal injury, in Gunshot injuries, in decomposed bodies, in disaster scenarios, etc. However, it has still not been applied to the field of Forensic Medicine in India. This article emphasizes the utility of this method and focuses on its urgent need in India.

Keywords: Digital Autopsy; Image processing; Radiology; Cause of death.

[1,2]Senior Resident, [3,4]Assistant Professor, [5]Professor & Head, Dept. of Forensic Medicine & Toxicology, All India Institute of Medical Sciences, New Delhi 110029, India.

Correspondence and Reprint Requests: Arijit Dey, Senior Resident, Department of Forensic Medicine, All India Institute of Medical Sciences, New Delhi 110029, India.

E-mail: arijit.forensic@gmail.com

Received on 18.02.2019, **Accepted on** 04.05.2019

Introduction

Recent scientific technologies have advanced to the level that different disciplines are interconnected to solve problems in the field of Forensic Medicine. It is a specialty used in judiciary that involves systematic application of knowledge involving the collection of data through observation and experimentation, leading to solution of a medicolegal problem. In the context of globalization, the importance of scientific evidence has been increasingly highlighted, and the conclusions made by forensic experts are important scientific evidence. Traditional forensic medical examination includes visual inspection and experience-based judgment during autopsy and histopathological examination. Improper forensic evidence may lead to contradictions and conflicts between people involved in the case and investigators. In recent years, with the development of science and technology, the integration of forensic pathology, medical imaging technology, computer technology, and other disciplines formed a series of new post-mortem forensic imaging methods, bringing a revolutionary breakthrough in forensic science [1,2]. Compared to traditional technologies, post-mortem forensic imaging methods are non-invasive, repeatable and are more conducive to resolving the key issues in several cases [3,4]. Autopsy means "to see with own eyes," derived from Greek words "autos" meaning "self" and "opsomei" means "I will see." Digital autopsy is the application of digital technologies to aid in the process of Postmortem examination by the Autopsy surgeon. Digital autopsy is a multi-disciplinary technology that combines forensic medicine and pathology, radiology, physics, and computer graphics [5]. Conventional autopsy involves invasive procedures that are the traditional means of postmortem examination; however,

Digital autopsy is a minimally invasive emerging technology in the field of forensic medicine that incorporates imaging technology of radiologists and forensic medicine experts.

Digital Autopsy based on modern imaging technology

In all cases involving sudden, unnatural and suspicious death, identifying the cause of death is often difficult and challenging task. The primary focus of the autopsy surgeon is to determine the cause of death, manner of death, and assessment of fatal and non-fatal injuries and scene reconstruction if it is possible. Forensic autopsy is recognized as the gold standard for a clear cause of death. But, it has limitations in the examinations of special parts of the body, the change or destruction of the body due to the autopsy operation and various internal and external factors, lacunae in histopathological examination, etc., the autopsy cannot always provide sufficient information to determine the cause of death [6]. Also, traditional autopsy is a destructive examination, and the family of the deceased often resists conduction of autopsy, especially due to the repulsion and rejection on religious and cultural beliefs [7]. The development of multi-detector computed tomography (MDCT), magnetic resonance imaging (MRI) and other medical imaging technologies provides a non-invasive/minimally invasive autopsy approach for the forensic examination, i.e. Digital autopsy. This technology provides a clear observation of lesions and damages on cadaveric organs, bones and tissues [8]. The image data can be saved, and re-examined in future, and this technology has a significant value for the detection of forensic injury and determination of the cause of death [9].

The findings of traditional autopsy and digital autopsy can be compared and analyzed, which will yield a more objective judgment compared with that obtained by a traditional autopsy alone [10]. Systemic researches of Digital autopsy started in Switzerland [11] and later spread to the United States, [12] Japan, [13] England [14] and many other countries. These developed nations have carried out post-mortem forensic imaging projects that integrate multiple technologies focused on the determination of the cause of death, forensic pathological detection, vital reactions, the reconstruction, reproduction and imaging of injuries, and other key aspects in forensic science.

Procedure of Digital Autopsy

In Digital Autopsy, there is fusion of medical 3D imaging techniques as well as a 3D surface scan to map the external surface of a body. The process records and documents a detailed 3D image of the body surface area. The body is kept covered inside a bag through which X-rays can easily pass, in order to prevent contamination. The scan utilizes cameras to capture colored body image, and then the body is laid on the sliding table of the CT and MRI machine. The bag remains closed while the body is scanned not only to respect privacy of the dead, but also to maintain hygiene of the room. CT scan is completed in 20 sec and up to 25,000 images are acquired; each image is a slice through the body. The information from the interior and surface scans is supplied to powerful computers where these data are combined using computer-aided programs and graphics processors. Within 10 minutes, a concise, detailed image of bone and tissue are reconstructed using computers, from the data representing thin X-ray slices of the body. These images can be manipulated and rotated at various angles, providing instant flexibility to the viewer. If internal body samples are needed, a needle biopsy can be done after analyzing the 3D model, internal and surface scans. All the data scanned are then captured and saved on compact discs [15].

Applications of Digital autopsy

Timing of death: This can be determined by Digital autopsy using changes seen in both CT and MRI in head injury cases [16].

Establishing Identity of individuals: Comparison of CT scan of an unidentified cranium with ante mortem CT scan of a man reported to be missing established identity of a deceased individual [17]. Dental identification procedures involve comparison between postmortem and ante mortem data, and are compulsory for dental identification, which is obtained principally by visual examination. However, visual examination is difficult in charred bodies, where Digital autopsy can be applied as a quick, reliable way for getting postmortem records [18].

Digital autopsy for age and sex determination: Sex determination in forensic practice involves examination of sexually dimorphic bones such as pelvic bones. CT scan provides an easy and fast method for depicting and measuring bone structures prior to autopsy.

Digital autopsy in road traffic accident: Postmortem CT and MRI were done in three cadavers of fatal blunt head injury, which showed extensive hard and soft tissue injuries of the head and signs of high intracranial pressure with herniation of the cerebellar tonsils; these findings corroborated with those of traditional autopsy, which was done after the digital autopsy [19].

Digital autopsy in Asphyxial Deaths: A case series of postmortem CT and MRI of nine persons has been reported, who died from hanging or manual strangulation. The neck findings were compared with those found during traditional autopsy. The report concluded that CT and MRI revealed strangulation signs similar to forensic pathology findings [20]. Plattner reported a case report of drowning, whereby the findings of a massive vital decompression with pulmonary barotrauma and lethal gas embolism were identified in radiological images [21].

Digital autopsy in sudden death: Sohail et al. determined the utility of CT scan in establishing the cause of death among male prisoners dying in Karachi jails, and concluded that CT was equally effective as traditional autopsy in identifying pulmonary infections and natural causes of death [22].

Digital autopsy in death due to thermal Injury: Thali et al. reported a completely charred body of a single motor vehicle accident with a post-crash fire. The radiological methods of CT and MRI helped to document the thermal injuries caused by burn as well as the forensic relevant vital reactions and concluded that postmortem imaging is a good forensic tool with a great potential for the forensic documentation and examination of completely charred bodies [23].

Digital autopsy in Gunshot injuries: A case series of eight gunshot victims were scanned by CT and MRI and the data were interpreted with subsequent correlation of findings from classical autopsy. The CT and MRI examinations with the subsequent two-dimensional multi-planar reformation helped document the entire gunshot created complex skull fractures and brain injuries in complete graphic detail [24].

Advantages of Digital autopsy

Digital autopsy can be used to examine the entire body, without loss or destruction of forensic evidence. It is repeatable, and can record the actual size of the lesions. The archived data can be used for consultation and re-examination, and 3D information can be provided as intuitive evidences in court [25]. Digital autopsy can examine complicated body structures and areas not included in conventional autopsy, and can also be applied to ancient, highly decomposed bodies or bodies contaminated by infectious diseases, toxic substances, or other biohazards [26]. When there are strong cultural objections or objections from family members and it is not possible to perform autopsy, Digital autopsy can serve as an alternative method to collect evidence for determining the cause of death. This process allows a digital re-examination of the body after liberation of the crime scene and burial of the corpse. These images can also be used for teaching and research purposes and also applied in teleforensic or telepathology.

Limitations

Post-mortem forensic imaging has certain limitations. The quality of image acquired depends on device performance, scanning parameters, body condition and operators' personal judgments [27]. The true color of tissues may not be appreciated and artifacts may appear during the scanning. In addition, digital autopsy requires costly equipment, and is difficult for general institutions to perform the related research.

Conclusion

Traditional autopsy has its own mark on the postmortem table, so does the virtual 3D image of a decomposed body as it lends its futuristic advancements to maintain the privacy of a dead person and end the last chapter of life with perfection. Currently, several institutions are carrying out research related to post-mortem forensic imaging and virtual autopsy. Similar to other technologies, post-mortem forensic imaging has its own unique strengths and weakness. In a developing country like India, the traditional postmortem examination cannot be completely replaced at present. However, the application of Digital autopsy will become increasingly prominent and recognized. Thus, advanced technology like Digital autopsy is need of the hour in Indian context. Department of Forensic Medicine & Toxicology, AIIMS, New Delhi is the first of its kind in South East Asian Region, to start Digital autopsy in Forensic Medicine. The department had presented a proposal in front of competent authorities of ICMR, and after thorough deliberation and discussion, ICMR has approved the implementation of this technology for research, academic and medicolegal purposes.

References

1. Press C, Approach TV. The virtopsy approach. Boca Raton (FL): CRC Press; 2009.
2. Dirnhofer R, Jackowski C, Vock P, et al. Virtopsy: minimally invasive, imaging-guided virtual autopsy. Radio Graphics. 2006;26:1305–33.
3. Thali M. Virtual autopsy (virtopsy) in forensic science: from the scalpel to the scanner. Der Pathologe. 2011;32:292–95. Epub 2011/11/09.
4. Bolliger SA, Thali MJ. Imaging and virtual autopsy: looking back and forward. Phil Trans Royal Soc London Series B, Bio Sci. 2015;370:1–7. Epub 2015/06/24.
5. Wright JR., Jr Sins of our fathers: Two of the four doctors and their roles in the development of techniques to permit covert autopsies. Arch Pathol Lab Med. 2009;133:1969–74. [PubMed]
6. Liu N, Yang S, Zhao H, et al. Application of multi-slice computed tomography in biomechanical analysis of traffic accidents. Fa yi xue za zhi. 2010;26(12):401–405.
7. Lundberg GD. Low-tech autopsies in the era of high-tech medicine: continued value for quality assurance and patient safety. Jama J Am Med Assoc. 1998;280:1273–74.
8. Han S, Wan L, Huang P, et al. Postmortem MSCT analysis and identification of fall from height: one case report. Fa yi xue za zhi. 2015;31:191–95.
9. Chen Y. Research development and application of virtopsy. Fa yi xue za zhi. 2014;30:360–66.
10. Zheng J, Liu N, Zou D, et al. The application of threedimensional spiral CT in cadaver dead from mechanical injury. Chinese J Forensic Med. 2010;25:150–54.
11. Michaud K, Grabherr S, Jackowski C, et al. Postmortem imaging of sudden cardiac death. Int J Legal Med. 2014;128:127–37.
12. Daly B, Abboud S, Ali Z, et al. Comparison of wholebody post mortem 3D CT and autopsy evaluation in accidental blunt force traumatic death using the abbreviated injury scale classification. Forensic Sci Int. 2013;225:20–26.
13. Okuda T, Shiotani S, Sakamoto N, et al. Background and current status of postmortem imaging in Japan: short history of Autopsy imaging (Ai). Forensic Sci Int. 2013;225:3–8.
14. Rutty GN, Biggs MJP, Brough A, et al. Ventilated postmortem computed tomography through the use of a definitive airway. Int J Legal Med. 2015;129:325–34.
15. Thali MJ, Jackowski C, Oesterhelweg L, Ross SG, Dirnhofer R. Virtopsy – The swiss virtual autopsy approach. Leg Med (Tokyo). 2007;9:100–4. [PubMed]
16. Pohlenz P, Blessmann M, Oesterhelweg L, Habermann CR, Begemann PG, Schmidgunst C, et al. 3D C-arm as an alternative modality to CT in postmortem imaging: Technical feasibility. Forensic Sci Int. 2008;175:134–9. [PubMed]
17. Vinchon M, Noulé N, Tchofo PJ, Soto-Ares G, Fourier C, Dhellemmes P. Imaging of head injuries in infants: Temporal correlates and forensic implications for the diagnosis of child abuse. J Neurosurg. 2004;101(1 Suppl):44–52. [PubMed]
18. Smith DR, Limbird KG, Hoffman JM. Identification of human skeletal remains by comparison of bony details of the cranium using computerized tomographic (CT) scans. J Forensic Sci. 2002;47:937–9. [PubMed]
19. Aghayev E, Yen K, Sonnenschein M, Ozdoba C, Thali M, Jackowski C, et al. Virtopsy postmortem multi-slice computed tomography (MSCT) and magnetic resonance imaging (MRI) demonstrating descending tonsillar herniation: Comparison to clinical studies. Neuroradiology. 2004;46:559–64. [PubMed]
20. Yen K, Thali MJ, Aghayev E, Jackowski C, Schweitzer W, Boesch C, et al. Strangulation signs: Initial correlation of MRI, MSCT, and forensic neck findings. J Magn Reson Imaging. 2005;22:501–10. [PubMed]
21. Plattner T, Thali MJ, Yen K, Sonnenschein M, Stoupis C, Vock P, et al. Virtopsy-postmortem multislice computed tomography (MSCT) and magnetic resonance imaging (MRI) in a fatal scuba diving incident. J Forensic Sci. 2003;48:1347–55. [PubMed]
22. Sohail S, Mirza FH, Khan QS. Postmortem computed tomography for diagnosis of cause of death in male prisoners. J Pak Med Assoc. 2010;60:4–8. [PubMed]
23. Thali MJ, Yen K, Vock P, Ozdoba C, Kneubuehl BP, Sonnenschein M, et al. Image-guided virtual autopsy findings of gunshot victims performed with multi-slice computed tomography and magnetic resonance imaging and subsequent correlation between radiology and autopsy findings. Forensic Sci Int. 2003;138:8–16. [PubMed]
24. Thali MJ, Yen K, Plattner T, Schweitzer W, Vock P, Ozdoba C, et al. Charred body: Virtual autopsy with multi-slice computed tomography and magnetic resonance imaging. J Forensic Sci. 2002;47:1326–31. [PubMed]
25. Han S, Wan L, Qin Z, et al. Comparison of postmortem MSCT and autopsy findings in traffic accident victims. Fa Yi Xue Za Zhi. 2016;32:86–89, 93.
26. Liu N, Zou D, Xu J, et al. Comparison between application of imaging techniques and autopsy in the identification of injury manner. Fa yi xue za zhi. 2009;25:254–59.
27. Zhou S, Wan L, Shao Y, et al. Detection of aortic rupture using post-mortem computed tomography and post-mortem computed tomography angiography by cardiac puncture. Int J Legal Med. 2016;130:469–74.

Review Article

RFP Journal of Hospital Administration
Volume 3 Number 1, January - June 2019

An Insight into International Health and the Overlap of Terms

Meely Panda[1], Rashmi Agarwalla[2], Tazean Zahoor Malik[3], Vishal Kumar Singh[4]

How to cite this article:
Meely Panda, Rashmi Agarwalla, Tazean Zahoor Malik et al. An Insight into International Health and the Overlap of Terms. RFP Journal of Hospital Administration. 2019;3(1):25-27.

Abstract

The health of each one of us, directly and indirectly, affects others as well. International Health as we know today is because of the fact that communication and transport have become fast, instantaneous and convenient. It is very crucial to take a versatile approach to public health problems, which are often complex in nature since Health is a very vast concept and not merely a biological event. International health, in Koplan's view, has mainly focused on health issues, especially infectious diseases, and maternal and child health in low-income countries. Public health is generally is viewed as having a focus on the health of the population of a specific country or community, a perspective shared by Koplan et al. The burden of preventable disease is more concentrated in the middle- and low-income countries; most of the global health centres are located in high-income countries which adversely affects the international health. However, we are yet to explain to ourselves what exactly the term International Health means. To add to our woes, we have similar or near similar terms used in adjunction or synonymously. We suggest that academic institutions have an opportunity – as well as a responsibility – to assure that leadership for global health is as inclusive and worldwide as the tasks ahead are broad and daunting.

Keywords: International Health; Public Health; Global Health; Tropical medicine.

[1,2]Assistant Professor, [3,4]Resident, Dept. of Community Medicine, Hamdard Institute of Medical Sciences and Research, Jamia Hamdard, New Delhi 110062, India.

Correspondence and Reprint Requests: Meely Panda, Assistant Professor, Dept. of Community Medicine, Hamdard Institute of Medical Sciences and Research, Jamia Hamdard, New Delhi 110062, India.

E-mail: meeliepanda@gmail.com

Received on 11.05.2019, **Accepted on** 08.06.2019

Introduction

The health of each of us, directly and indirectly, affects others as well. It is important to take a versatile approach to public health problems, which are often very complex in nature since Health is a vast concept and not merely a biological phenomenon [1].

International Health as we know today is because of the fact that communication and transport have become fast and convenient. We can travel from one part of the world to another part of the world in just a few hours and so can the organisms with us. As a result, one country's health issues are not just their own anymore. This gives rise to the concept of shared responsibilities where each and everyone has to bear the burden of the devil. Populations have become more multicultural and borders are passed over more easily by wars and diseases, which makes the control of infectious diseases very complicated. Doctors are more likely to face refugees, with their particular mental and physical health problems. Information now spreads very quickly, and to understand how research agendas are shaped by global priorities has become very important. The results of scientific studies are frequently cited far away from their origin country, and an understanding of a population's genetic, cultural, and environmental differentiation is vital

before conclusions can be drawn [2]. However, we are yet to explain ourselves what exactly is the real meaning of the term International Health. To add to our woes, we have indistinguishable or near indistinguishable terms used in adjunction or synonymously. In rather simpler terms, Global health means 'coming of age' at least as measured by the increasing number of academic centers, especially in high-income countries, although many of these centres have strong links with low- and middle-income countries. A common and widely accepted definition of Global health is yet to come up [1,3].

The approach to medicine which concerns itself with the health of the community as a whole is Public Health. Public Health is community health since it's vital to all of us all the time. Community Health generally focuses on a defined geographical area. However, diseases are not restricted to the border of the geographical area. Saying that we will cater to a certain area will not only land us in isolation but will also make dealing with health problems unholistic.

The Health Concern: An Overlap of terms

Koplan and colleagues differentiated among global health, international health, and public health [1]. However, there is still predominant confusion and overlap between the three terms. In Koplan's view, International health focuses on health issues, especially infectious diseases, and maternal and child health in low-income countries. However, certain authors have also described international health synonymous to global health. For example, Merson et al. define international health as 'the application of the principles of public health to problems and challenges that affect low and middle-income countries and to the complex array of global and local forces that influence them" [1,4].

In the mid 20th Century, tropical medicine grew as a discipline. This was the time when many doctors and scientists from Asia, Africa, and Latin America visited Europe for training and returned home to establish teaching schools of medicine and public health. This led to the integration of the aspects of tropical medicine into their curricula and setting up research institutions dedicated to tropical medicine [5].

Around the middle of the 20th century, international health grew as an activity and became a hub of professional enterprises that involved the development of international programs to promote health, prevent and control disease, and support developing countries in developing and strengthening their healthcare delivery system. In the late 1970s, a dual health movement started. On one hand, the international organizations started promoting programmes to deliver immunization, family planning, and growth monitoring among others – as elements of improving primary care – while, on the other hand, schools of tropical medicine, and public health led the development of education and research programs in international health. Training in international health became and remains popular among health professionals living and working in developing countries [3].

Emporiatrics, better known as travel medicine, is that branch of medicine which deals with the prevention and management of health problems of international travelers [6]. The basic tenet of travel medicine is selecting the necessary and best prevention strategy without unnecessary adverse events, cost or inconvenience [7]. It is one of the lesser known and explored faculties of medicine, even though it plays a crucial role in maintaining global health in general and a country's health in particular, especially for the low and middle-income countries.

Public health is said to be that branch which has a focus on the health of the population of a specific country or community, a perspective shared by Koplan et al. [2,8] Fried et al. do not share this view and disagree with any distinction between public health and global health and suggest that 'public health is global health for the public good' [9].

A definitive working definition of global health was proposed by Kaplan et al. quoted as "Global health is an area or study, research, a practice that places a priority on improving health and achieving equity in health in all people worldwide [2].

The Scenario

Though it is well known that the burden of preventable diseases is more in the low- and middle-income countries, most of the global health centers are located in high-income countries. Several factors are responsible for this; The Centres in low- and middle-income countries are also engaged in issues concerning global health but under other labels. For example, several centers in low- and middle-income countries have been funded by the National Heart, Lung and Blood Institutes to undertake prevention activities against

chronic diseases, though their focus seems to be on the related national programmes [10]. Global health may be seen as a separate issue from the health needs of low- and middle-income countries which are already struggling under the pressure of many other challenging issues. Strong national public health institutions help in instigating an interest in global public health among masses, which are usually lacking in LMIC [11].

It has been found that socio-cultural, environmental, economic and institutional factors and sub-factors- the reasons for the globalization process- have a strong impact on Population Health. New global health initiatives are being created by several health institutions, particularly in North America. However, there is no common consensus on the term global health, agreement about the content of global health courses, or of what it means to work or conduct research in global health.

Also, there is no obvious trend to develop global health initiatives of an academic nature in low- or middle-income countries. The reason for this could be because global health is primarily being defined by institutions in developed countries and in terms of their working with developing countries. Thus global health, for any developing country institution, when defined in this way, is business as usual. As the interest in global health increases, there is a threat that all this new energy for global health will result in it becoming an activity developed through the lens of rich countries, ostensibly for the benefit of poor countries, but without the key ingredients of a mutually agreed collaborative endeavor [3].

Summary and Conclusion

Thus we find that health has taken up an uphill course of including many new diseases in its arena because of increased transport and communication and improved cross-cultural activities. Along with it, the terms and manifests have also taken a turn and have fragmented and segmented themselves to cater to certain topics or areas. This adds to the already existing confusion of what to include and how to tackle.

This concept once clarified will lead to better acceptance of the job and activities taken up. People tend to attempt those activities which either satisfy them or pay them well. So in order to attract more personnel in these fields, we definitely need to provide inputs and more job responsibilities as well as scope. But before that, we suggest to devise and provide proper segregation of the terms so that courses and curriculum can be specific and predetermined. We would suggest that academic institutions be given an opportunity – as well as a responsibility – to assure that the leadership for global health should be as comprehensive and multinational as the tasks ahead are immense and intimidating.

References

1. Amatya A, Basel P. Why study Global Health? Kathmandu University Medical Journal. Kathmandu, Nepal. 2014 Apr-Jun;12(46).
2. Bateman C, Baker T, Hoornenborg E, Ericsson U. Bringing global issues to medical teaching. The Lancet. 2001;358:1539–42.
3. Macfarlane SB, Jacobs M, Kaaya EE. In the Name of Global Health: Trends In Academic Institutions. Journal of Public Health Policy. 2008;29(4):383–401. Retrieved from: http://www.jstor.org/stable/40207204.
4. Merson MH, Black RE, Mills AJ. International public health: diseases, programs, systems, and policies. 2nd ed. Sudbury, MA: Jones and Bartlett; 2006.
5. Gilles HM, Lucas AO. Tropical medicine: 100 years of progress. Br Med Bull. 1998;54(2):269–80.
6. Burchard GD. Travel medicine-the next 10 years. Eur J Med Res, 1999 Sep 9;4(9):399-402.
7. Page Stephen J. The evolution of travel medicine research: a new research agenda for tourism? Tourism Management 2009;30(2):149-57.
8. Koplan JP, Bond TC, Merson MH, Reddy KS, Rodriguez MH, Sewankambo NK, et al. Towards a common definition of global health. Lancet. 2009;373:1993–5.
9. Fried LP, Bentley ME, Buekens P, Burke DS, Frenk JJ, Klag MJ, et al. Global health is public health. Lancet. 2010;375:535–7.
10. Beaglehole R, Bonita R. Glob Health Action. 2010; 3. Published online 2010 Apr 06. Doi: 10.3402/gha.v3i0.5142. PMCID: PMC2852240.
11. Editorial. Evaluation: the top priority for global health. Lancet. 2010;375:526.

STATEMENT ABOUT OWNERSHIP AND OTHER PARTICULARS

"RFP Journal of Hospital Administration" (See Rule 8)

1. Place of Publication	:	Delhi
2. Periodicity of Publication	:	Half-yearly
3. Printer's Name	:	**Dinesh Kumar Kashyap**
Nationality	:	Indian
Address	:	395-A, Pocket-II, Mayur Vihar, Phase-1, Delhi-91
4. Publisher's Name	:	**Dinesh Kumar Kashyap**
Nationality	:	Indian
Address	:	395-A, Pocket-II, Mayur Vihar, Phase-1, Delhi-91
5 Editor's Name	:	**Dinesh Kumar Kashyap**
Nationality	:	Indian
Address	:	395-A, Pocket-II, Mayur Vihar, Phase-1, Delhi-91
6. Name & Address of Individuals	:	**Red Flower Publication Pvt. Ltd.**
who own the newspaper and particulars of	:	41/48, DSIDC, Pocket-II
shareholders holding more than one per cent of the total capital		Mayur Vihar, Phase-1, Delhi-91

I **Dinesh Kumar Kashyap**, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Sd/-

(Dinesh Kumar Kashyap)

RFP Journal of Hospital Administration
Volume 3 Number 1, January - June 2019

Sudden Cardiac Death in Young Individuals Due to Occlusive Coronary Artery Disease: An Alarming Indicator for Public Health

Abhishek Yadav[1], Varun Chandran[2], D. Balaji[3], Sudhir K Gupta[4]

How to cite this article:
Abhishek Yadav, Varun Chandran, D. Balaji et al. Sudden Cardiac Death in Young Individuals Due to Occlusive Coronary Artery Disease: An Alarming Indicator for Public Health. RFP Journal of Hospital Administration. 2019;3(1):29-31.

Abstract

Coronary artery disease (CAD) is the main cause of Sudden Cardiac deaths (SCD). SCD in young individuals particularly who are asymptomatic cause huge emotional shockto the family members who are left bewildered by this sudden mis-happening. We report a case of a sudden cardiac death in a healthy youth with no previous complaints who died in his normal routine while going to office. The authors aim to highlight the presence of undiagnosed heart disease in young individuals so that preventive steps may be taken for early diagnosis and treatment. The authors also intend to add to the Medical literature about the incidence of CAD in young individuals.

Keywords: Sudden Cardiac Death; Coronary Artery disease; Atherosclosis; Ventricular Arrythmia; Myocardial Iscaemia.

[1]Assistant Professor, [2]Senior Resident, [3]Junior Resident, [4]Professor & head, Department of Forensic Medicine and Toxicology, All India Institute of Medical sciences (AIIMS), New Delhi 110029. India.

Correspondence and Reprint Requests: Abhishek Yadav, Assistant Professor, Department of Forensic Medicine and Toxicology, All India Institute of Medical sciences (AIIMS), New Delhi 110029, India.

E-mail: drayad_in@yahoo.com

Received on 11.05.2019, **Accepted on** 08.06.2019

Introduction

Cardiovascular diseases (CVD) is a cause of about a quarter of all deaths in India and Coronary artery Diseases (CAD) are the leading group in them [1,2]. CAD are continuously increasing in India and likewise developing nation [3]. This may be attributed to modernization, industrialization, urbanization, and related lifestyle changes like unhealthy food habits, leack of exercise etc. [4]. Though it is a natural cause of death but a Medicolegal investigation is initiated when there is sudden death due to Cardiac conditions. Sudden cardiac death is defined as death from unexpected circulatory arrest—usually a result of cardiac arrhythmia—that occurs within 1 hour of the onset of symptoms [5]. The frequency of sudden cardiac death in young individuals is significantly increasing. These individuals are usually asymptomatic before and the underlying heart disease is diagnosed after the death of individual. This also causes huge emotional shock for the family members who are left bewildered by this sudden mis-happening. Though middle aged individuals have started to get preventive health checkups but still this aspect is very often being overlooked by the people particularly in the young age groups. We report a case of sudden cardiac death in a healthy youth who was only 26 years old who had no previous complaints and Medical Historybut died in his normal routine while going to office. The authors aim to highlight the presence of undiagnosed heart diseases in young individuals at an early age for sensitization of the society so that preventive steps may be taken for early diagnosis and treatment. The authors also intend to add to the Medical literature about the increased incidences of sudden cardiac death in young individuals.

Case Report

A 26 years old young individual suddenly lost consciousness and collapsed while moving on an escalator in a metro station. He was taken to a nearby hospital where he was declared brought dead. As it was a sudden death, a MLC was made in the hospital and postmortem was conducted in All India Institute of Medical sciences, New Delhi. In postmortem examination, bluish discoloration was present over the nail beds indicating cyanosis. Few minor injuries were present over the body which were consistent with the fall on escalator but were superficial and not contributing to cause of death. Brain and other Visceral organs were congested. Lungs were congested and edematous. In heart, walls and chambers were intact. Atherosclerotic thickening of wall of proximal one third of left anterior descending branch of left coronary was present along with an impacted thrombus resulting in 100% blockage of lumen (Image-1). Other coronaries were patent. No sign of poisoning was present in the stomach.

The cause of death was concluded in the report as "Shock due to Myocardial Insufficiency due to occlusive atherosclerotic coronary artery disease with an impacted thrombus".

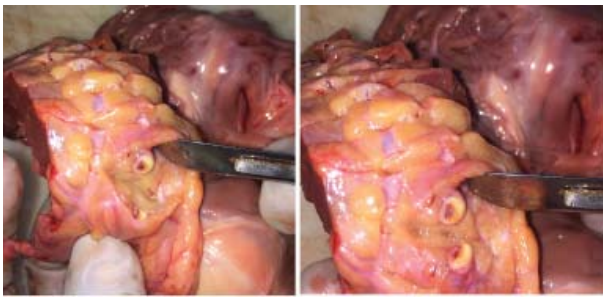

Image 1: Atherosclerotic thickening of wall of proximal one third of left anterior descending branch of left coronary along with an impacted thrombus resulting in 100% blockage of lumen

Discussion

Coronary artery disease (CAD) is the main cause of Sudden Cardiac deaths (SCD) [6]. In occlusionof coronary arteries, clinical symptoms are due to progressive narrowing of the lumen leading to stenosis or acute plaque erosion or rupture with thrombus. It leads to compromised blood flow and leads to Myocardial Ischemia. Obstructions greater than 75% of the lumen of the coronaries are classified as significant coronary artery disease. SCD is caused by regional myocardial ischemia leading to fatal ventricular arrhythmia [6]. The deceased in our case had 100% blockage of the lumen of anterior descending branch of left coronary artery due to an impacted thrombus in atherosclerotic lumen (Image -1).

SCDs in the persons over 35 years of age are mostly caused by Ischaemic Heart diseases, whereas in young individuals congenital and hereditary conditions are the main factors [7,8]. In young people the reasons for SCDs are hypertrophic cardiomyopathy, coronary artery anomalies with an inter-arterial or intramural course, and arrhythmogenic right ventricular cardiomyopathy. So we can clearly see that the deceased in the present case was not in the age group which is considered as at risk for CAD due to atherosclerosis [7,8]. This is an alarming indicator which necessitates the need of further studies regarding the prevalence of CAD in young individuals particularly in the age group of 20-30 years. Prabhakaran et al. [9] revealed high prevalence of coronary risk factors in a selected relatively young male population in anindustrial setting from north India. Rapid urbanization and change in lifestyle have increased the coronary risk factors in India like Diabetes, hypertension, dyslipidemia, smoking, central obesity, alcoholism and physical inactivity [10].

The deceased was unmarried and used to live with his parents and sister. He left his home as a normal routine to go to office and then collapsed in the Metro station. He was living a normal life and didn't have any previous complaints/symptoms of cardiac disease before the incident. The family also did not suspect any foul play. During the interview, the family members did not revealed any history of smoking, alcoholism, excessive fat intake, previous Medical condition etc. According to them the deceased was a perfectly healthy individual. Several studies and researches have been done to find risk factors and bio markers of CAD but identifying the asymptomatic individuals who are at risk of developing SCD associated with CAD still remains a challenge [11,12,13]. Timely diagnosis and Medical intervention are the most important factors to reduce the Mortality in such patients. Though the deceased was taken to a nearby tertiary care hospital by the Metro Police still his life could not be saved.

Preventive measures like cessation/control of alcohol and smoking and Screening for Blood Glucose Level, Dyslipidemia, Hypocholesteremia, Hypertension, etc could play an important role in such underlying heart disorders. The symptoms like chest pain, dyspnea, palpitations, presyncope, and syncope should not be taken lightly and careful history and proper physical

examination should be done. The approach includes noninvasive testing, such as 12-lead, exercise, and Holter electrocardiography (ECG); cardiac imaging; electrophysiologic testing; and molecular genetic testing if required [14]. Screening of young individuals, particularly those involved in athletics and exercise, have identified the young athletes who have increased risk of cardiovascular diseases thereby decreasing incidence of sudden deaths [15-16].

Conclusion

This case is a clear indicator that young adults may be at the risk of Sudden Cardiac Death due to epidemic underlying CAD whose prevalence may be low but emotional trauma to the family of the deceased is huge due to unexpected demise. The life style changes may be the predisposing factor particularly junk foods, alcohol abuse, smoking, stress factor, lack of daily exercise or unsupervised heavy exercise. Though the task is huge and tedious timely identification and management of young adults for CAD is the need of the hour.

Conflict of Interest: Nil.

Funding: None

References

1. Institute of Health Metrics and Evaluation. GBD Compare 2010. http:// vizhub.healthdata.org/gbd-compare/. Accessed April 30, 2014.
2. Report on Causes of Death in India 2001–2003. New Delhi, India: Office of the Registrar General of India; 2009.
3. Fuster V, Kelly BB. Board for Global Health. Promoting Cardiovascular Health in Developing World: A Critical Challenge to Achieve Global Health. Washington, DC: Institutes of Medicine; 2010.
4. Kuate-Defo B. Beyond the transition frameworks: the cross-continuum of health, disease and mortality framework. Glob Health Action. 2014 May 15;7:24804.
5. Zipes DP, Camm AJ, Borggrefe M, et al. ACC/ AHA/ ESC 2006 Guidelines for Management of Patients With Ventricular Arrhythmias and the Prevention of Sudden Cardiac Death: a report of the American College of Cardiology/American Heart Association Task Force and the European Society of Cardiology Committee for Practice Guidelines (writing committee to develop Guidelines for Management of Patients With Ventricular Arrhythmias and the Prevention of Sudden Cardiac Death): developed in collaboration with the European Heart Rhythm Association and the Heart Rhythm Society. Circulation. 2006;114(10):e385–e484.
6. Kumar V, Abbas AK, Aster JC. Robbins and cotran Pathologic Basis of disease: Volume-1. South Asia edition. Elsevier: New Delhi. 2015.pp.551-52.
7. Ajay VS, Prabhakaran D. Coronary heart disease in Indians: Implications of the interheart study. Indian J Med Res. 2010;132:561-66.
8. Sen-Chowdhry S, McKenna WJ. Sudden cardiac death in the young: a strategy for prevention by targeted evaluation. Cardiology. 2006;105(4):196–206.
9. Prabhakaran D, Shah Pankaj, Chaturvedi V, Ramakrishnan L, Manhapra A, Reddy KS. Cardiovascular risk factor prevalence among men in a large industry of north India. Natl Med J India. 2005;18:59-65.
10. Enas EA, Yusuf S, Mehta J. Prevalence of coronary artery disease in Asian Indians. Am J Cardiol. 1992;70:945-49.
11. Head T, Henn L, Andreev AP, Herderick EE, Deo SK, Daunert S, Goldschmidt-Clermont PJ. Accelerated coronary atherosclerosis not explained by traditional risk factors in 13% of young individuals. American Heart journal. 2018;208:47-54.
12. Mohan V, Deepa R, Rani SS, et al. Prevalence of coronaryartery disease and its relationship to lipids in a selectedpopulation in South India. J Am CollCardiol. 2001;38:682-87.
13. Gupta R, Gupta VP, Sarna M, et al. Prevalence of coronaryheart disease and risk factors in an urban Indian population:Jaipur Heart Watch-2. Indian Heart J. 2002;54:59-66.
14. Asif IM, Drezner JA. Sudden cardiac death and preparticipation screening: the debate continues—in support of electrocardiogram-inclusive preparticipation screening. ProgCardiovasc Dis. 2012;54(5):445–50.
15. Corrado D, Basso C, Pavei A, Michieli P, Schiavon M, Thiene G. Trends in sudden cardiovascular death in young competitive athletes after implementation of a pre-participation screening program. JAMA. 2006;296:1593-1601.
16. Corrado D, Basso C, Schiavon M, Thiene G. Screening for hypertrophic cardiomyopathy in young athletes. N Engl J Med. 1998;339:364-69.

RFP Journal of Hospital Administration

Library Recommendation Form

If you would like to recommend this journal to your library, simply complete the form below and return it to us. Please type or print the information clearly. We will forward a sample copy to your library, along with this recommendation card.

Please send a sample copy to:

Name of Librarian

Name of Library

Address of Library

Recommended by:

Your Name/ Title

Department

Address

Dear Librarian,

I would like to recommend that your library subscribe to the RFP Journal of Hospital Administration. I believe the major future uses of the journal for your library would provide:

1. useful information for members of my specialty.
2. an excellent research aid.
3. an invaluable student resource.

I have a personal subscription and understand and appreciate the value an institutional subscription would mean to our staff.

Should the journal you're reading right now be a part of your University or institution's library? To have a free sample sent to your librarian, simply fill out and mail this today!

Stock Manager
Red Flower Publication Pvt. Ltd.
48/41-42, DSIDC, Pocket-II
Mayur Vihar Phase-I
Delhi - 110 091(India)
Phone: Phone: 91-11-45796900, 22754205, 22756995, Cell: +91-9821671871
E-mail: sales@rfppl.co.in

Review Article

RFP Journal of Hospital Administration
Volume 3 Number 1, January - June 2019

Regulation of Surrogacy in India: Need of the Hour

Neha Sharma[1], Arijit Dey[2], Kulbhushan Prasad[3], Abhishek Yadav[4], Swati Tyagi[5]

How to cite this article:
Neha Sharma, Arijit Dey, Kulbhushan Prasad et al. Regulation of Surrogacy in India: Need of the Hour. RFP Journal of Hospital Administration. 2019;3(1):33-36.

Abstract

Revolution of Medical Sciences over last century has not only raised the standard of health and living, but also hope for certain diseases/disabilities which were earlier considered to be untreatable. Infertility was one of such condition, but advancement of Assisted Reproductive Technology has given hope of parenthood to infertile couples. Surrogacy has come up as an alternative option for the infertile couples with incurable etiology. Surrogacy is of two types- Altruistic and Commercial; recently commercial surrogacy has gained popularity not only among intended couples but also among singles and professionals who intend to have children without bearing complications of conception and gestation. Developing countries have emerged as an alternative for commercial surrogacy due to low financial inputs as well as either no guidelines or liberal regulatory guidelines for surrogacy. We discuss a case of commercial surrogacy which turned unsuccessful due to non compliance of regulatory laws.

Keywords: Surrogacy; Artificial reproductive Techniques; Surrogacy regulation law; Altruistic; Commercial.

[1,2,5]Senior Resident, [3,4]Assistant Professor, Dept. of Forensic Medicine & Toxicology, All India Institutes of Medical Sciences, New Delhi 110029, India.

Correspondence and Reprint Requests: Arijit Dey, Senior Resident, Department of Forensic Medicine, All India Institutes of Medical Sciences, New Delhi 110029. India.

E-mail: arijit.forensic@gmail.com

Received on 25.05.2019, **Accepted on** 15.06.2019

Introduction

The advancement of Medical science especially the artificial Reproductive techniques has fulfilled long cherished desire of many infertile couples to have biological /genetic children. But a part of society is acting as touts to commercialize ART through surrogacy. Surrogacy is a contract in which a mother bears biological child for another couple; such child may be genetically linked to her in case she donates her ovum. For a long time there was no separate law in the country to regulate the unethical practice of surrogacy and India was hub of surrogacy tourism owing to no defined laws [1].

Assisted Reproductive Technology (regulation) rules, 2008 was framed in order to regulate the selection of donar, consent from donar and future parents, all the medicolegal aspects related to the proceeding of assisted reproductive techniques and inspection of clinics performing ART's. The techniques covered under ART (regulation) rules, 2008 are Gamete Intrafallopian Transfer, Zygote Intrafallopian Transfer, Intracytoplasmic Sperm Injection and Ovum Donation [2,3]; there were no regulatory rulings for Surrogacy, which led to ethical misuse of the method.

Surrogacy regulation law 2018 is the latest addition to the special laws and has been framed to regulate the commercialization of surrogacy. We will be discussing a case report where a financially challenged female become a surrogate without providing previous disease history which later led to complications.

Case Report

History: A 42 years widow was referred from a private hospital to AIIMS, New Delhi for consultation regarding complications related to pregnancy. It was revealed that she was a surrogate with 17 weeks period of gestation carrying twins in exchange of monetary benefits and had concealed her past medical history of tuberculosis, hydrocephalus and depression. During second trimester she was admitted to a private hospital for treatment of vomiting. She gave history of consuming Mirtazapine tablets (antidepressant) 15-20 in number and was advised to undergo genetic counseling. She came to AIIMS, New Delhi as an outdoor patient and was advised Medical Termination of Pregnancy. Before commencement of MTP her condition worsened and had to be shifted to Emergency for treatment where she passed away. Her body was brought to the Mortuary of Department of Forensic Medicine & Toxicology for postmortem.

Post mortem examination: Deceased was average built, 162 cm in length. Rigor mortis was well developed all over the body. Postmortem staining was present over the back, dependent parts of the body and was fixed. Healed surgical mark was present on right iliac fossa. Left eye was congested and right was normal. Mouth was closed and frenulum intact.

Injuries

1. A sutured wound of length 4.5 cm with 4 sutures in-situ was present on left temporal region. The wound was 6 cm above left eyebrow. On removing the sutures, wound was scalp deep with an underlying sub-scalp hematoma in an area 2 cm x 2 cm.
2. On scalp an old C-shaped scar mark of length 8 cm was present on the left side of scalp over temporo-mandibular region 5 cm above and posterior to left mastoid (scar of shunting operation) an old scar mark of size 6 cm over the right fronto-parietal region of scalp 5 cm above tip of right ear.

Over skull a burr hole was present in right temporo-parietal region region with a single white coloured plastic drain passing out from it. The drain transverses through the neck, chest cavity till the peritoneum. Brain and Meninges were edematous and congested. A surgical scar mark was present on the right side of abdomen. Uterus was enlarged containing two fetus in-situ. One male and other was female. There were 2 separate intact and umbilical cords. The male fetus was 25 cm long and weighs 225 g. the female fetus was 33 cm long and weighed 204 g.

The deceased had past history of Tuberculosis and Hydrocephalus. Shunting for hydrocephalus was done in year 2014. She was surrogate mother with 17 weeks period of gestation and was being under follow up at a private IVF centre. While being pregnant she suffered from hydrocephalus and was shunted for the same. She had multiple episodes of vomiting and was admitted to maternity hospital from where she was referred to higher centre. At the referral hospital, patient admitted taking 10-15 tablets of Mirtazipine. She was advised for genetic counseling due to teratogenecity of mertazepine. Medical termination of pregnancy was planned but her general condition worsened in labour room, so she was shifted to emergency.

Discussion

The popularity and utility of assisted reproductive techniques (ART) is on rise due to rise in prevalence of infertility all over the world. Surrogacy has emerged as a popular alternative method for infertile couples, singles and even some professionals to have children. Surrogacy is a legal arrangement where a surrogate mother contracts to carry and deliver a child for another couple or person. In gestational surrogacy, an embryo is formed by in vitro fertilization of gametes of infertile couple and is implanted into the uterus of the surrogate mother who carries and delivers the baby but is not the genetic mother of the baby. In traditional surrogacy, the surrogate mother is artificially impregnated with the sperms of the intended father and she is also genetic mother [4]. Surrogacy may be commercial or altruistic; depending upon the factor whether the surrogate receives financial benefit in exchange of the baby. Countries all over the world are divided over the ethical implication of surrogacy. Most of the countries allow altruistic surrogacy, few permit both commercial and altruistic type of surrogacy and there are many countries which have a total ban on any type of surrogacy. Germany, Sweden, Norway, Italy, Iceland, China and Japan do not recognize any type of surrogacy whether altruistic or commercial. Commercial surrogacy is illegal in England, Australia and few states of USA but theses allow altruistic surrogacy. However,

state of California in USA and Ukraine legalize commercial surrogacy [5]. India recently joined the group of countries banning commercial surrogacy and permitting only altruistic surrogacy after the parliamentary approval of Surrogacy Regulation Bill in year 2018. India had been a popular surrogacy destination worldwide due to low cost, international standards of ART in the procedure as well as no defined rules and regulations for citizens, non residents and non citizens [5]. Absence of strict regulating law has been used by the mediators and touts to financially exploit both intending couple as well as poor surrogates. Also the poor surrogates have been lured to join the business in exchange of monetary benefits which is only a fraction of the total amount extracted from genetic parents. Apart from the exploitation of the surrogate, intending parents are also duped by concealing the medical and disease history of the surrogate by the surrogate herself or some mediator just for financial gains [6]. For a woman to be chosen as surrogate, she has to undergo inquisitive medical and laboratory examination, provide past history of any medical condition, family history of a disease condition etc to rule out baby having any genetic or chromosomal disease [7]. As per the rules and regulations set by ICMR which were followed before commencement of Surrogacy regulation law (2018) a surrogate should not be more than 45 years of age, limiting successful births to three in addition to her own children. In case a surrogate is married consent from her spouse has to be taken. Surrogate can be a relative, friend or hired for commercial surrogacy and belonging to same generation in case she is a relative [8]. It also allowed practice of commercial surrogacy in addition to flexible rules for foreign nationals. So, low financial input while maintaining a high medical technology as well as lenient laws in context to foreigners made India a highly preferred country for surrogacy tourism. And as it is said, human race develops business out of everything; the technology of ART has been commercialized so is the surrogacy. Moreover, low socio economic status of people in a developing country forces them to look for an alternative method to make money; and their situation is often misused by a mediator who influences either the woman herself or her spouse to make money. Intended parents are charged a huge amount, of which just a fraction is paid to the surrogate but even this fraction means a lot to her and her family. Sometimes the urge for financial gains is so high that often past or present medical conditions are concealed for the worldly gain, which later leads to complications for both the surrogate and the foetus [9]. In October 2015, Supreme Court of India called for a total ban on the provision of commercial surrogacy to all foreign nationals, pronouncing that 'renting a womb … amounts to the economic and psychological exploitation of the surrogate mother and is inconsistent with the dignity of womanhood' [10].

In our case report also surrogate was 42 years old widow with two living children, had a past medical history of tuberculosis, hydrocephalus as well as depressive disorder. She was either forced to hide her diseases or herself concealed past medical history for financial gains. As per the guidelines of ICMR which were followed before the approval of Surrogacy Regulation Bill, she was not a suitable surrogate to carry fetus. Still somehow she was chosen to carry babies overlooking her medical conditions. Surrogacy regulation Law aims to avoid such tragedies through firm rules and regulations. The salient features of the newly passed surrogacy bill, 2018 are as follows-

Salient features of Surrogacy regulation law 2018

1. Permits only altruistic ethical surrogacy to infertile couples between the age 23-50 years for females and 26-55 for males. Below and above this age limit surrogacy as an option for artificial reproductive treatment is not available to intending couples.
2. Couples intending for surrogacy should be Indian citizens and legally married for at least five years.
3. The intending couple should not be having any surviving healthy biological or adopted child except if the living child is mentally or physically challenged or suffer from life threatening disorders with no prognosis of cure.
4. The child born through surrogacy should not be abandoned by intending couples under any conditions.
5. The surrogate child will have same rights as the biological child.
6. The surrogate mother should be a close relative the intending couple, her age should be between 25-35 years and should be surrogate just once.
7. Surrogate mother should carry fetus genetically related to intending parents.
8. An order from court of first class magistrate has to be obtained concerning parentage and custody of the child born through surrogacy.

9. A reasonable and adequate insurance should be given to surrogate mother for a period of 16 months covering post-partum complications.
10. National surrogacy board will have powers to function and policy making under this act
11. A surrogacy clinic has to be registered under this act and should have facilities, equipments and standards including specialized manpower, physical infrastructure and diagnostic facilities according to rules and regulations National Surrogacy Board.
12. Violation of the rules and regulation is a punishable offence with imprisonment for a term not less than ten years and with fine which may extend to ten lakh rupees.
13. Surrogacy clinics should maintain records for a period of 25 years.

Funding: None

Conflict of Interest: None declared

References

1. C. Burrell and L. C. Edozien. Surrogacy in modern obstetric practice. Seminars in Fetal and Neonatal Medicine. 2014;19(5):272–278.
2. P.R. Brinsden. Gestational surrogacy. Human Reproduction Update. 2003;9(5):483–91.
3. Armour KL. An overview of surrogacy around the world. Nurse Women's Health. 2012;16:23-6.
4. Bhatia K, Martindale EA, Rustamov O, Nysenbaum AM. Review: surrogate pregnancy: an essential guide for clinicians. Obstet Gynaecol. 2009;11:49-54.
5. Nelson E. Global trade and assisted reproductive technologies: Regulatory challenges in international surrogacy. The Journal of Law, Medicine& Ethics, 2013;41(1):240–253.
6. Kaumudhi Challa. Contentious Issues in Surrogacy: Legal and Ethical Perspectives in India. Christ University Law Journal. 2012;1(1):117-26.
7. M. Simopoulou, K. Sfakianoudis, P. Tsioulou, A. Rapani , G. Anifandis , A. Pantou, S. Bolaris, P. Bakas, E. Deligeoroglou, K. Pantos and M. Koutsilieris. Risks in Surrogacy Considering the Embryo: From the Preimplantation to the Gestational and Neonatal Period. Hindawi BioMed Research International Volume 2018, Article ID 6287507, 9 pages https://doi.org/10.1155/2018/628750
8. Indian Council of Medical Research, National Academy of Medical Sciences (India). National guidelines for accreditation, supervision and regulation of ART clinics in India. New Delhi: Ministry of health and family welfare, government of India; 2005.
9. Bindel J. (2016, February 8). The pimping of pregnancy: Exposing the international commercial surrogacy business. Byline. Retrieved from https://www.byline.com/project/43
10. As reported in The Times of India 15 October 2015. Available at: https://timesofindia.indiatimes.com/india/SC-suggests-ban-on-commercial-surrogacy/articleshow/49365734.cms.

Guidelines for Authors

Manuscripts must be prepared in accordance with "Uniform requirements for Manuscripts submitted to Biomedical Journal" developed by international committee of medical Journal Editors

Types of Manuscripts and Limits

Original articles: Up to 3000 words excluding references and abstract and up to 10 references.

Review articles: Up to 2500 words excluding references and abstract and up to 10 references.

Case reports: Up to 1000 words excluding references and abstract and up to 10 references.

Online Submission of the Manuscripts

Articles can also be submitted online from http://rfppl.co.in/customer_index.php.

I) First Page File: Prepare the title page, covering letter, acknowledgement, etc. using a word processor program. All information which can reveal your identity should be here. use text/rtf/doc/PDF files. Do not zip the files.

2) Article file: The main text of the article, beginning from Abstract till References (including tables) should be in this file. Do not include any information (such as acknowledgement, your name in page headers, etc.) in this file. Use text/rtf/doc/PDF files. Do not zip the files. Limit the file size to 400 Kb. Do not incorporate images in the file. If file size is large, graphs can be submitted as images separately without incorporating them in the article file to reduce the size of the file.

3) Images: Submit good quality color images. Each image should be less than 100 Kb in size. Size of the image can be reduced by decreasing the actual height and width of the images (keep up to 400 pixels or 3 inches). All image formats (jpeg, tiff, gif, bmp, png, eps etc.) are acceptable; jpeg is most suitable.

Legends: Legends for the figures/images should be included at the end of the article file.

If the manuscript is submitted online, the contributors' form and copyright transfer form has to be submitted in original with the signatures of all the contributors within two weeks from submission. Hard copies of the images (3 sets), for articles submitted online, should be sent to the journal office at the time of submission of a revised manuscript. Editorial office: Red Flower Publication Pvt. Ltd., 48/41-42, DSIDC, Pocket-II, Mayur Vihar Phase-I, Delhi – 110 091, India, Phone: 91-11-22754205, 45796900, 22756995. E-mail: author@rfppl.co.in. Submission page: http://rfppl.co.in/article_submission_system.php?mid=5.

Preparation of the Manuscript

The text of observational and experimental articles should be divided into sections with the headings: Introduction, Methods, Results, Discussion, References, Tables, Figures, Figure legends, and Acknowledgment. Do not make subheadings in these sections.

Title Page

The title page should carry

1) Type of manuscript (e.g. Original article, Review article, Case Report)

2) The title of the article, should be concise and informative;

3) Running title or short title not more than 50 characters;

4) The name by which each contributor is known (Last name, First name and initials of middle name), with his or her highest academic degree(s) and institutional affiliation;

5) The name of the department(s) and institution(s) to which the work should be attributed;

6) The name, address, phone numbers, facsimile numbers and e-mail address of the contributor responsible for correspondence about the manuscript; should be mentoined.

7) The total number of pages, total number of photographs and word counts separately for abstract and for the text (excluding the references and abstract);

8) Source(s) of support in the form of grants, equipment, drugs, or all of these;

9) Acknowledgement, if any; and

l0) If the manuscript was presented as part at a meeting, the organization, place, and exact date on which it was read.

Abstract Page

The second page should carry the full title of the manuscript and an abstract (of no more than 150 words for case reports, brief reports and 250 words for original articles). The abstract should be structured and state the Context (Background), Aims, Settings and Design, Methods and Materials, Statistical analysis used, Results and Conclusions. Below the abstract should provide 3 to 10 keywords.

Introduction

State the background of the study and purpose of the study and summarize the rationale for the study or observation.

Methods

The methods section should include only information that was available at the time the plan or protocol for the study was written such as study approach, design, type of sample, sample size, sampling technique, setting of the study, description of data collection tools and methods; all information obtained during the conduct of the study belongs in the Results section.

Reports of randomized clinical trials should be based on the CONSORT Statement (http:// www. consort-statement. org). When reporting experiments on human subjects, indicate whether the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional or regional) and with the Helsinki Declaration of 1975, as revised in 2000 (available at http://www.wma. net/e/policy/l 7-c_e.html).

Results

Present your results in logical sequence in the text, tables, and illustrations, giving the main or most important findings first. Do not repeat in the text all the data in the tables or illustrations; emphasize or summarize only important observations. Extra or supplementary materials and technical details can be placed in an appendix where it will be accessible but will not interrupt the flow of the text; alternatively, it can be published only in the electronic version of the journal.

Discussion

Include summary of key findings (primary outcome measures, secondary outcome measures, results as they relate to a prior hypothesis); Strengths and limitations of the study (study question, study design, data collection, analysis and interpretation); Interpretation and implications in the context of the totality of evidence (is there a systematic review to refer to, if not, could one be reasonably done here and now?, What this study adds to the available evidence, effects on patient care and health policy, possible mechanisms)? Controversies raised by this study; and Future research directions (for this particular research collaboration, underlying mechanisms, clinical research). Do not repeat in detail data or other material given in the Introduction or the Results section.

References

List references in alphabetical order. Each listed reference should be cited in text (not in alphabetic order), and each text citation should be listed in the References section. Identify references in text, tables, and legends by Arabic numerals in square bracket (e.g. [10]). Please refer to ICMJE Guidelines (http://www.nlm.nih.gov/bsd/uniform_ requirements.html) for more examples.

Standard journal article

[1] Flink H, Tegelberg Å, Thörn M, Lagerlöf F. Effect of oral iron supplementation on unstimulated salivary flow rate: A randomized, double-blind, placebo-controlled trial. J Oral Pathol Med 2006; 35: 540-7.

[2] Twetman S, Axelsson S, Dahlgren H, Holm AK, Källestål C, Lagerlöf F, et al. Caries-preventive effect of fluoride toothpaste: A systematic review. Acta Odontol Scand 2003; 61: 347-55.

Article in supplement or special issue

[3] Fleischer W, Reimer K. Povidone iodine antisepsis. State of the art. Dermatology 1997; 195 Suppl 2: 3-9.

Corporate (collective) author

[4] American Academy of Periodontology. Sonic and ultrasonic scalers in periodontics. J Periodontol 2000; 71: 1792-801.

Unpublished article

[5] Garoushi S, Lassila LV, Tezvergil A, Vallittu PK. Static and fatigue compression test for particulate filler composite resin with fiber-reinforced composite substructure. Dent Mater 2006.

Personal author(s)

[6] Hosmer D, Lemeshow S. Applied logistic regression, 2nd edn. New York: Wiley-Interscience; 2000.

Chapter in book

[7] Nauntofte B, Tenovuo J, Lagerlöf F. Secretion and composition of saliva. In: Fejerskov O,

Kidd EAM, editors. Dental caries: The disease and its clinical management. Oxford: Blackwell Munksgaard; 2003. p. 7-27.

No author given

[8] World Health Organization. Oral health surveys - basic methods, 4th edn. Geneva: World Health Organization; 1997.

Reference from electronic media

[9] National Statistics Online—Trends in suicide by method in England and Wales, 1979-2001. www.statistics.gov.uk/downloads/theme_health/HSQ20.pdf (accessed Jan 24, 2005): 7-18. Only verified references against the original documents should be cited. Authors are responsible for the accuracy and completeness of their references and for correct text citation. The number of reference should be kept limited to 20 in case of major communications and 10 for short communications.

More information about other reference types is available at www.nlm.nih.gov/bsd/uniform_requirements.html, but observes some minor deviations (no full stop after journal title, no issue or date after volume, etc).

Tables

Tables should be self-explanatory and should not duplicate textual material.

Tables with more than 10 columns and 25 rows are not acceptable.

Table numbers should be in Arabic numerals, consecutively in the order of their first citation in the text and supply a brief title for each.

Explain in footnotes all non-standard abbreviations that are used in each table.

For footnotes use the following symbols, in this sequence: *, ¶, †, ‡‡,

Illustrations (Figures)

Graphics files are welcome if supplied as Tiff, EPS, or PowerPoint files of minimum 1200x1600 pixel size. The minimum line weight for line art is 0.5 point for optimal printing.

When possible, please place symbol legends below the figure instead of to the side.

Original color figures can be printed in color at the editor's and publisher's discretion provided the author agrees to pay.

Type or print out legends (maximum 40 words, excluding the credit line) for illustrations using double spacing, with Arabic numerals corresponding to the illustrations.

Sending a revised manuscript

While submitting a revised manuscript, contributors are requested to include, along with single copy of the final revised manuscript, a photocopy of the revised manuscript with the changes underlined in red and copy of the comments with the point to point clarification to each comment. The manuscript number should be written on each of these documents. If the manuscript is submitted online, the contributors' form and copyright transfer form has to be submitted in original with the signatures of all the contributors within two weeks of submission. Hard copies of images should be sent to the office of the journal. There is no need to send printed manuscript for articles submitted online.

Reprints

Journal provides no free printed reprints, however a author copy is sent to the main author and additional copies are available on payment (ask to the journal office).

Copyrights

The whole of the literary matter in the journal is copyright and cannot be reproduced without the written permission.

Declaration

A declaration should be submitted stating that the manuscript represents valid work and that neither this manuscript nor one with substantially similar content under the present authorship has been published or is being considered for publication elsewhere and the authorship of this article will not be contested by any one whose name (s) is/are not listed here, and that the order of authorship as placed in the manuscript is final and accepted by the co-authors. Declarations should be signed by all the authors in the order in which they are mentioned in the original manuscript. Matters appearing in the Journal are covered by copyright but no objection will be made to their reproduction provided permission is obtained from the Editor prior to publication and due acknowledgment of the source is made.

Approval of Ethics Committee

We need the Ethics committee approval letter from an Institutional ethical committee (IEC) or an institutional review board (IRB) to publish your Research article or author should submit a statement that the study does not require ethics approval along with evidence. The evidence could either be consent from patients is available and there are no ethics issues in the paper or a letter from an IRB stating that the study in question does not require ethics approval.

Abbreviations

Standard abbreviations should be used and be spelt out when first used in the text. Abbreviations should not be used in the title or abstract.

Checklist

- Manuscript Title
- Covering letter: Signed by all contributors
- Previous publication/ presentations mentioned, Source of funding mentioned
- Conflicts of interest disclosed

Authors

- Middle name initials provided.
- Author for correspondence, with e-mail address provided.
- Number of contributors restricted as per the instructions.
- Identity not revealed in paper except title page (e.g.name of the institute in Methods, citing previous study as 'our study')

Presentation and Format

- Double spacing
- Margins 2.5 cm from all four sides
- Title page contains all the desired information. Running title provided (not more than 50 characters)
- Abstract page contains the full title of the manuscript
- Abstract provided: Structured abstract provided for an original article.
- Key words provided (three or more)
- Introduction of 75-100 words
- Headings in title case (not ALL CAPITALS). References cited in square brackets
- References according to the journal's instructions

Language and grammar

- Uniformly American English
- Abbreviations spelt out in full for the first time. Numerals from 1 to l0 spelt out
- Numerals at the beginning of the sentence spelt out

Tables and figures

- No repetition of data in tables and graphs and in text.
- Actual numbers from which graphs drawn, provided.
- Figures necessary and of good quality (color)
- Table and figure numbers in Arabic letters (not Roman).
- Labels pasted on back of the photographs (no names written)
- Figure legends provided (not more than 40 words)
- Patients' privacy maintained, (if not permission taken)
- Credit note for borrowed figures/tables provided
- Manuscript provided on a CDROM (with double spacing)

Submitting the Manuscript

- Is the journal editor's contact information current?
- Is the cover letter included with the manuscript? Does the letter:

1. Include the author's postal address, e-mail address, telephone number, and fax number for future correspondence?
2. State that the manuscript is original, not previously published, and not under concurrent consideration elsewhere?
3. Inform the journal editor of the existence of any similar published manuscripts written by the author?
4. Mention any supplemental material you are submitting for the online version of your article. Contributors' Form (to be modified as applicable and one signed copy attached with the manuscript)