A Study to Evaluate Pranayama on Bio Physiological Parameters Among Patients with Bronchial Asthma at NMCH, Nellore

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Abstract:-
Background: Respiration is essential for life because it provides energy for carrying out all the life processes which are necessary to keep the organisms alive. Pranayama is control of breath, practicing of pranayama achieves the balance in healthy body and mind. This study was aimed to evaluate the use of Anulom viloma pranayama as an adjuvant treatment approach for patients with bronchial asthma to improve their biophysiological parameters.

Objectives: 1. To assess the biophysiological parameters among patients with bronchial asthma,2.To evaluate the effectiveness of pranayama on bio physiological parameters among patients with bronchial asthma,3.To find out the association between the bio physiological parameters among patients with bronchial asthma with their selected socio demographic variables.

Materials and methods: A quantitative approach Quasi experimental, one group pre test and post test design was adopted. Non probability convenience sampling technique was used to select the 60 study participants. Data was collected through observational checklist for assessment of biophysiological parameters. Data was analyzed by descriptive and inferential statistics.

Results: Study results shows that, In pre test 10(16.7%) were poorly maintained, 14(68.3%) were moderately maintained, 9 (15%) were normally maintained and in post test 2(3.33%) were poorly maintained, 16(26.7%) were moderately maintained and 42(70%) normally maintained biophysiological parameters.

Conclusion: The conclusion drawn from the study was that there was a significant improvement in bio physiological parameters in post test results among patients with bronchial asthma.

Keywords:- Bronchial Asthma, Pranayama, Biophysiological Parameters

I. INTRODUCTION

Bronchial asthma is one of the lower respiratory tract disorder, characterized by periods of reversible bronchospasm. Asthma is always called as a reactive disease. This complex disorder involves biochemical, immunological, endocrine, infectious, autonomic and physiological factors. Risk factors may be having a blood relative, being overweight, being smoker, exposure to secondhand smoke, exposure to exhaust smoke/fumes or other type of pollution. Bronchospasm may lead to almost continuous coughing in an attempt to exhale and clear the airway. Pranayama is control of breath, practicing of pranayama result in healthy body and mind. Respiratory parameters are used to assess the functioning of respiratory system, which include three types of parameters, volume parameters, respiratory physical parameters, parameters of gas metathesis within the lungs.

Objectives:
1. To assess the biophysiological parameters among patients with bronchial asthma.
2. To evaluate the effectiveness of pranayama on bio physiological parameters among patients with bronchial asthma.
3. To find out the association between the bio physiological parameters among patients with bronchial asthma with their selected socio demographic variables.

II. MATERIALS AND METHODS

Research approach: A quantitative research approach was adopted.

Research design: Quasi experimental, one group pre test and post test design.

Setting: The study was conducted in pulmonology, general medicine ward at Narayana medical college hospital, Nellore.

Population:
Target population: Patients with bronchial asthma.

Accessible population: Patients who are admitted in Narayana medical college hospital with bronchial asthma.

Sample: Patient with bronchial asthma who fulfills the inclusion criteria.

Sampling technique: Non probability convenience sampling technique will be used for selecting the samples.

Sample size: The sample size of the study will be 60 participants.

Sampling criteria:

Inclusion criteria:
1. Age above 20 years.
2. Both gender.
3. Patients with bronchial asthma.
4. Who can speak and understand telugu and english.

Exclusion criteria:
1. Who are not willing to participate in the study.
2. Unconscious patients.
3. Patients who are already exposed to pranayama with co morbid diseases

Variables
Dependent variable: Bio physiological parameters.
Independent variable: Pranayama.
Extraneous variables: Bronco dilators, inhalers, nebulizers.

Description of tool: The tool is divided into two parts.

Part A: socio demographic variables
Age, sex, education, occupation, income, marital status, type of family, dietary pattern, habit of smoking, habit of alcohol, duration of illness and co-morbid diseases.

Part B: Observational checklist to assess the bio physiological parameters.

Scoring key: bio physiological parameters
- 1-11 poorly maintained.
- 11-21 moderately maintained
- 22-33 normally maintained.

Scoring interpretation for bio physiological parameters
- poorly maintained=1
- Moderately maintained=2
- Normally maintained =3

Data analysis and interpretation:
The data analysis was based on the objectives of the study using the descriptive and inferential statistical method.
SECTION-I : Frequency and percentage distribution of socio-demographic variables of patients with bronchial asthma.
SECTION – II: Frequency and percentage distribution of biophysiological parameters among patients with bronchial asthma.
SECTION- III :
a. Effectiveness of pranayama on biophysiological parameters among patients with bronchial asthma.
b. Mean, standard deviation of biophysiological parameters among patients with bronchial asthma.
SECTION-IV: Association between the bio physiological parameters among patients with bronchial asthma with their selected socio demographic variables.

III. RESULTS

The study results shows that the bio physiological parameters, in pre test 10(16.7%) were poorly maintained, 14(68.3%) were moderately maintained, 9 (15%) were normally maintained and in post test 2(3.33%) were poorly maintained, 16(26.7%) were moderately maintained and 42(70%) normally maintained.

Table1:- Effectiveness Of Pranayama On Biophysiological Parameters Through Pre Test And Post Test Scores Among Patients With Bronchial Asthma.

S.N	CATEGORY	PRE TEST		POST TEST	
		Frequency	**Percentage**	**Frequency**	**Percentage**
1.	Poorly maintained	10	16.7%	2	3.33
2.	Moderately maintained	41	68.3%	16	26.7
3.	Normally maintained	09	15%	42	70

IV. DISCUSSION

❖ *Findings of the Study:*

The results discussed based on the stated objectives as follows:

Objective 1: To assess the biophysiological parameters among patients with bronchial asthma.

➢ *Description of Biophysiological Parameters:*

- With reference to temperature in pretest, 40 (66.7 %)were having hyperthermia ,15 (25%) hypothermia, 5 (8.3%) normal temperature. In post test , 1 (1.7%) were having Hyperthermia, 35(58.3%) hypothermia, 24 (40%) normal temperature.

- In context to pulse rate in pretest, 35 (58.3 %) in tachy cardia,18 (30%) in brady cardia, 7 (11.7%)were having normal pulse rate. In post test , 1 (1.7%) in tachy cardia, 32(53.3%) in brady cardia, 27 (45%) were having normal pulse rate.

- With respecting to respiratory rate in pretest, 31 (51.7%) were reported tachypnea,2(3.3%) bradypnea, 27 (45%) normal respiratory rate. In post test , 10 (16.6%) were reported tachypnea, 02(3.3%) bradypnea, 48(80%) normal respiratory rate.

- With pertaining to blood pressure in pretest, 27 (45%) were hypertensive, 28(46.7%) hypotensive, 5(8.3%) normal blood pressure. In post test , 4 (6.7%) were hypertensive, 30(50%) hypotensive, 26 (43.3%) normal blood presssure.

- With reference to oxygen saturation in pretest, 06 (10%)were having severe hypoxemia, 29(48.3%) hypoxemia, 25 (41.6%) having normal oxygen saturation. In post test , 3(5%) were having severe hypoxemia, 21(35%) hypoxemia, 36 (60%) normal oxygen saturation.

- With regard to auscultation in pretest, 22 (36.7%) were noticed with poor air entry, 34(56.7%) creptations, 4 (6.6%) normal. In post test , 6(10%) were having poor air entry, 36(60%) creptations, 18 (30%) normal.

- With pertaining to FVC in pretest, 30 (50%) severly abnormal, 27 (45%) mild-moderate abnormal, 3(5%) normal. In post test , 6 (10%) severly abnormal, 35(58.3%) mild-moderate abnormal, 19(31.7%) normal.

- With reference to FEV1 in pretest, 30 (50 %) severly abnormal,28 (46.7%) mild-moderate abnormal, 2 (3.3%) normal. In post test , 8(13.3%) severly abnormal, 33(55%) mild-moderate abnormal, 19 (31.7%) normal.

- With context to FEV1/FVC in pretest, 28 (46.7%) severe obstruction, 27(45%) mild-moderate obstruction, 5 (8.3%) normal. In post test , 7 (11.7%) severe obstruction, 38(63.3%) mild-moderate obstruction, 15(25%) normal maintained.

- With respecting to PEFR (L/s) in pretest, 27 (45%) severe abnormal, 26 (43.3%) mild abnormal, 7 (11.7%) normal. In post test , 6(10%) severe abnormal, 35(58.3%) mild abnormal, 19 (31.7%) normal.

- With context to arterial oxygen partial pressure in pretest, 07 (11.6%) in severe hypoxemia, 25(41.7%) were having mild to moderate hypoxemia, 28 (46.6%) maintained normal PaO2. In post test , 6 (10%) were in severe hypoxemia, 24(40%) were having mild to moderate hypoxemia, 30 (50%) maintained normal PaO2

- With pertaining to arterial carbondioxide partial pressure in pretest, 13(21.6%) were in respiratory acidosis, 09(15%) were in respiratory alkalosis, 38(63.4%) were normal. In post test , 4(6.7%) were in respiratory acidosis, 1(1.6%) respiratory alkalosis, 55 (91.7%) were normal.

- With reference to bicarbonate in pretest, 3 (5%) were in metabolic alkalosis, 1 (1.6%) were in metabolic acidosis , 56 (93.4%) were normal. In post test , 5(8.3%) were in metabolic alkalosis, 2(3.3%) were in metabolic acidosis, 53(83.4%) were normal.

- With regarding to sodium bicarbonate in pretest, 23 (38.3 %) were in metabolic alkalosis, 29(48.4%) were in metabolic acidosis, 8(13.3%) were normal. In post test , 4(6.6%) were in metabolic alkalosis, 43(71.7%) were in metabolic acidosis, 13 (21.7%) were normal.

- With pertaining to PH in pretest, 22(36.7 %) were in alkalosis ,33 (55%) were in acidosis,5 (8.3%) were having normal PH. In post test , 4(6.6%) 57 were in alkalosis, 40(66.7%) were in acidosis, 16(26.7%) were having normal PH.

Objective:2 To evaluate the effectiveness of pranayama on bio physiological parameters among patients with bronchial asthma.

The pre test mean is 24.36 with standard deviation 5.27. The post test mean is 33.86 with standard deviation 5.47. The calculated "z" values (z cal =9.7, 2.0) is greater than the table value at 0.05 level of significance. This indicates that there is a true difference between the pretest and post test score of bio physiological parameters among patients with bronchial asthma. Therefore the research hypothesis is accepted and hence it is inferred that there is a significant difference in bio physiological parameters among patients with bronchial asthma.

Objective: 3 To find out the association between the bio physiological parameters among patients with bronchial asthma with their selected socio demographic variables.

In association with the effectiveness of pranayama on biophysiological parameters among patient with bronchial asthma in post test score with their socio demographic variables that are age, gender, occupation, family income, duration of illness, allergic history, habit of smoking and use of drugs are statistically significant at the level of $p < 0.05$.

V.   CONCLUSION

The conclusion drawn from the study was that there was a significant improvement in bio physiological parameters in post test results among patients with bronchial asthma. The investigator identified that there was a significant need for training programme for staff nurses regarding pranayama to educate for patients with bronchial asthma.

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