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Journal of Natural & Ayurvedic Medicine
ISSN: 2578-4986

Role of Ultra-High Dilutions of Homoeopathic Medicines in Increasing Blood Oxygen Saturation Levels in Patients under Palliative Treatment– A Case Series Study Using Pulse-Oximeter Levels

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Case Report
Volume 6 Issue 4
Received Date: September 21, 2022
Published Date: October 25, 2022
DOI: 10.23880/jonam-16000365

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Abstract

Background: Oxygen is one of the most important elements that support the life. So, the demand and delivery of oxygen should be well balanced in order to maintain homeostasis in our body. The maintenance of this homeostasis and oxygen delivery revolves around respiratory and cardiovascular system of our body. Thus, any dysfunction or abnormal function to these systems can leads to an imbalance in homeostasis causing hypoxemia and their complication including multi-organ dysfunction.

Objective: To obtain an effective homoeopathic management for hypoxemia in patients under palliative care by using ultra-high dilutions of various homoeopathic medicines and by thus improving the Quality of Life of the patient.

Methods: The methodology comprises of selection of patients from palliative care unit of Sarada Krishna Homoeopathic Medical College, Kulasekharam, whose SpO2 level falls between 95%-80% by the help of a pulse-oximeter and after the selection of patient appropriate ultra-high dilutions of homoeopathic medicine will be administered.

Results: From this study, it was observed that Homoeopathic treatment with oxygen therapy can improve Hypoxemia as well as Quality of Life (using 15D-HRQoL) in hypoxemic patients under palliative care treatment.

Conclusion: With Homoeopathic intervention, we can alleviate the sufferings of Hypoxemic patients in palliative care treatment.

Keywords: Dysfunction; Hypoxemia; Intervention; Palliative; Saturation

Introduction

Hypoxemia is a condition in which there is decrease in partial pressure of oxygen in blood PaO_2 [1]. The normal PaO_2 level is between 80-100 mmHg which corresponds to 95-100% of SpO_2, which is the oxygen saturation in arterial blood and can be assessed using a pulse-oximeter. Thus when PaO_2 level falls below 80 mmHg and SpO_2 level falls below 95% it causes hypoxemia [2]. There are several mechanisms that attributes to the development of hypoxemia, which includes; ventilation perfusion mismatch, right to left shunt, diffusion impairment, hypoventilation [1].

The causes of hypoxemia include Acute Respiratory Distress Syndrome, COPD, Asthma, Pulmonary edema, pulmonary embolism, interstitial lung disease, atelectasis, pneumonia, pulmonary fibrosis, High altitude sickness, respiratory failure, cardiovascular diseases and anemia [3].

The common symptoms of hypoxemia include dyspnea, coughing and wheezing, rapid heartbeat, headache, cyanosis, feeling of confusion or disorientation [3]. Many homoeopathic literatures have described how well homoeopathic medicines can be used in palliative care as well as in cases of hypoxemia. In "The collected work of Arthur Hill Grimmer" he describes about Carbo vegetabilis as "At the end of life's journey, when racked with suffering and anguish, cold, pulseless, blue and gasping for breath; wants to be fanned that more of the life sustaining oxygen may be wafted to his air-hungry tissues, what a comfort and power is released in the administration of this remedy" [4].

This study is focused on signifying the role of homoeopathy in increasing blood oxygen saturation levels in patients under palliative care. This study will substantiate the therapeutic value of various homoeopathic medicines which have its effect on increasing blood oxygen saturation and in turn help to sustain patients vitality. With the help of pulse oximeter the values of blood oxygen saturation can be recorded at even intervals and along with that the subjective as well objective symptoms of the patient will be recorded. By considering all the factors similimum is prescribed. This will pave way for the complete analysis of the improvement of the patient.

Materials and Methods

Sampling Method: Purposive Sampling.

Study Design: Single group, interventional study with, before and after observation was conducted without control group. Study was carried out at the Pain and Palliative care specialty unit of Sarada Krishna Homoeopathic Medical College Hospital. Data was collected according to Pre-structured SKHMCH case record Guided by the Medical officer. Case taking along with physical examination and required investigation was done for the required patients. Cases were analysed with SpO_2 levels before and after treatment. The assessment of the SpO_2 levels was done using pulse-oximeter.

Study Setting: A sample size of 7 cases were taken from patients under Palliative treatment, from IPD's of Sarada Krishna Homoeopathic Medical College Hospital, Kulashekaram, Kanniyakumari district, Tamil Nadu, whose oxygen saturation in arterial blood (SpO_2) falls between 95%-80% particularly in patients whose SpO_2 level remains constant for at least 5 consecutive minutes. Detailed case taking was done and recorded in accordance to the hospital's standardized chronic case record format. Symptom analysis has been done and remedies were selected after proper reportorial approach and prescription was made by considering the patient as a whole. Follow up, analysis, repetition, dosage was also done.

Inclusion Criteria: Subjects with SpO_2 level between 95% - 80%. Subjects under palliative treatment. All sex and age groups.

Exclusion Criteria: Subjects with SpO_2 below 80% and above 95%. Those who are not willing for the research.

Methodology

Study was conducted in 7 subjects under Palliative treatment, from IPD's of Sarada Krishna Homoeopathic Medical College, whose oxygen saturation in arterial blood (SpO_2) falls between 95%-80% particularly in patients whose SpO_2 level remains constant for a specific period of time.

At first the oxygen saturation is assessed using a pulse-oximeter and if the SpO_2 level falls between 95%-80% and the hypoxemic state remains constant for at least 5 consecutive minutes, the patients were administered with ultra-high dilutions of homoeopathic medicine considering the symptoms.

For patients whose SpO_2 level was between 95%-90% they were administered with ultra-high dilutions of homoeopathic medicine alone, whereas patients whose SpO_2 level was between 89%-80% were administered with ultra-high dilutions of homoeopathic medicine along with oxygen therapy. After administering the medicine, the SpO_2 levels were recorded till it reached ≥90% for every 5 minutes and for the patient whose SpO_2 level reduced to 65% or below, they were referred to higher center and was considered drop out of the study. The quality of life was assessed before and after the treatment using 15D-HRQoL [5]. After administering the ultra-high dilutions of homoeopathic medicine, the SpO_2 level will be monitored continuously every 5 minutes until the oxygen saturation of the patient becomes normal.

Statistical Analysis

The paired t test was used to compare QOL scale before and after treatment.

Ethical Consideration

Ethical clearance was obtained from the ethical committee of SKHMC before the commencement of the research.

Results

Seven cases that met with the inclusion criteria have been considered for the study. Table 1 summarizes the outcome of the review of these cases. The cases have been described below.

Case No	Gender/ Age(in years)	Diagnosis	SpO_2 level before treatment	QoL score before treatment	SpO_2 level after treatment	QoL score after treatment	Medicine administered
1	Male/66	HCC	84%	53	94%	46	*Hippozaenium Q Arsenicum album 30*
2	Female/62	CA Uterus	82%	54	92%	46	*Kalium iodatum 30*
3	Male/56	CA Cheek	78%	54	92%	46	*Carbo vegitabilis 30*
4	Male/60	CA Prostate	86%	55	91%	45	*Arsenicum album 30*
5	Male/50	CA Stomach	88%	55	90%	46	*Apis mellifica 1X*
6	Female/72	HCC	84%	55	70%	55	*Amyl Nitrosum 30 Carbo vegitabilis 30*
7	Male/60	Brain tumor	80%	55	70%	55	*Arsenicum album 30 Carbo vegitabilis 30 Aspidosperma Q*

Table1: Clinical details of the patient considered for the study.

Case: 1

A 66 year old male patient, who has been admitted in the IPD of SKHMCH with Hepatocellular carcinoma (forth stage) showed a fluctuation in the SpO_2 level, the initial value was 84%, as per protocol oxygen supplementation was given at a rate of 10-15 L/min along with ultra-high dilutions of *Hippozaenium Q* followed by *Arsenicum album 30* considering the totality of symptoms of the patient. After the administration, within a period of 30 minutes the SpO_2 level was raised to 94% and the patient's SpO_2 level remained stable after that. The 15D-HRQoL score before the treatment was 53 and after the treatment it became 46. Patient has other comorbidities like Hypertension, Diabetes mellitus, Ascites and Pulmonary hypertension.

Case: 2

A 62 year old female patient, who has been admitted in the IPD of SKHMCH with CA Uterus showed a fluctuation in the SpO_2 level, the initial value was 82%, as per protocol oxygen supplementation was given at a rate of 10-15 L/ min along with ultra-high dilutions of *Kalium iodatum 30* considering the totality of symptoms of the patient. After the administration, within a period of 30 minutes the SpO_2 level was raised to 92% and the patient's SpO_2 level remained stable after that. The 15D-HRQoL score before the treatment was 54 and after the treatment it became 46. Patient has other comorbidities like Hypertension.

Case: 3

A 56 year old male patient, who has been admitted in the IPD of SKHMCH with CA Cheek showed a fluctuation in the SpO_2 level, the initial value was 78%, as per protocol oxygen supplementation was given at a rate of 10-15 L/ min along with ultra-high dilutions of *Carbo vegetabilis* 30 considering the totality of symptoms of the patient. After the administration, within a period of 30 minutes the SpO_2 level was raised to 92% and the patient's SpO_2 level remained stable after that. The 15D-HRQoL score before the treatment was 54 and after the treatment it became 46. Patient has other comorbidities like Hypertension.

Case: 4

A 60 year old male patient, who has been admitted in the IPD of SKHMCH with CA Prostate showed a fluctuation in the SpO_2 level, the initial value was 86%, as per protocol oxygen supplementation was given at a rate of 1-5 L/min along with ultra-high dilutions of *Arsenicum album 30* considering the totality of symptoms of the patient. After the administration, within a period of 30 minutes the SpO_2 level was raised to 91% and the patient's SpO_2 level remained stable after that. The 15D-HRQoL score before the treatment was 55 and after the treatment it became 45.

Case: 5

A 50 year old male patient, who has been admitted in the

IPD of SKHMCH with CA Stomach showed a fluctuation in the SpO_2 level, the initial value was 88%, as per protocol oxygen supplementation was given at a rate of 1-5 L/min along with ultra-high dilutions of *Apis mellifica 1 X* considering the totality of symptoms of the patient. After the administration, within a period of 30 minutes the SpO_2 level was raised to 90% and the patient's SpO_2 level remained stable after that. The 15D-HRQoL score before the treatment was 55 and after the treatment it became 46.

Case: 6

A 72 year old female patient, who has been admitted in the IPD of SKHMCH with Hepatocellular carcinoma showed a fluctuation in the SpO_2 level, the initial value was 84%, as per protocol oxygen supplementation was given at a rate of 10-15 L/min along with ultra-high dilutions of *Amyl nitrosum 30* followed by *Carbo vegetabilis* 30 considering the totality of symptoms of the patient. The patient's blood oxygen level was dropping every consecutive five minutes, from 84% to 70% by the end of 45 minutes and thus the patient was referred to higher centre. The patient was having other comorbidities like Hypertension, Diabetes mellitus and Dyslipidemia.

Case: 7

A 60 year old male patient, who has been admitted in the IPD of SKHMCH with Brain tumor showed a fluctuation in the SpO_2 level, the initial value was 80%, as per protocol oxygen supplementation was given at a rate of 10-15 L/min along with ultra-high dilutions of *Arsenicum album 30*, Carbo vegetabilis 30 and Aspidosperma Q considering the totality of symptoms of the patient. The patient's blood oxygen level was dropping every consecutive five minutes, from 80% to 70% by the end of 40 minutes and thus the patient was referred to higher centre. The patient was having other comorbidities like COPD, Diabetes mellitus and Epilepsy.

Discussion

Hypoxemia is a medical emergency, should be treated on the nail. Failure to initiate supporting therapy can result in serious harm to the patient or may even lead to death. The samples for this study are seven cases, which were identified to have Hypoxemia and were admitted under Palliative Care IP of Sarada Krishna Homoeopathic Medical College. Based on the analysis from seven cases of Hypoxemia in palliative care treatment, following observations were made comparing with the available literature.

In a sample of 7 cases, 71.42 % (n=5) belongs to male patient, 28.57% (n=2) are female patients. Existing cancer incidence shows that male is more affected than females. Here in this study males are affected more. This finding supports existing theories.

Based on age, 57.14 % (n=4) cases belongs to 60-69 age group, 28.57 % (n=2) cases from 50-59 age group and 14.29 % (n=1) case from age group of 70-79 years. According to the most recent statistical data from NCI‟s Surveillance, Epidemiology, and End Results program, the median age of a cancer diagnosis is 66 years. The median age at diagnosis is 61 years for breast cancer, 68 years for colorectal cancer, 70 years for lung cancer, and 66 years for prostate cancer [6]. This study supports existing data's in prevalence of cancer age.

In this study, most common conditions associated with the seven (n=7) cases are 16.66% (n=3) cases have Diabetes Mellitus, 16.66 % (n=3) cases have Hypertension, 11.11 % (n=2) cases have Hepatocellular carcinoma, 5.55 % (n=1) cases have Dyslipidaemia, 5.55 % (n=1) cases have Epilepsy, 5.55 % (n=1) cases have Portal Hypertension, 5.55 % (n=1) cases have Ascites, 5.55 % (n=1) cases have COPD, 5.55 % (n=1) cases have CA Uterus, 5.55 % (n=1) cases have CA Prostate, 5.55 % (n=1) cases have CA stomach, 5.55 % (n=1) cases have CA Cheek, 5.55 % (n=1) cases have Glioblastoma. Patients having Diabetes and hypertension are at a greater risk of developing cancer. According to a study conducted by Hiroshi Igarashi, upheld the association between the use of oxygen therapy, in patients with low oxygen saturation and survival of patients with advanced cancer; he concluded that patients with low oxygen saturation with advanced cancer was not significantly associated with increased survival rates [7]. Recent years studies suggest that there is a substantial increase in cancer incidence in Diabetes as well as in Hypertensive patients [8].

Among the seven cases, before treatment all cases were in moderate hypoxemic level, and after treatment 71.42 % (n=5) cases improved from moderate to mild and 28.6 % (n=2) cases became severe. The 71.42 % positive result means homoeopathy has a significant role in managing moderate levels of Hypoxemia. Here role of Oxygen therapy should be discussed, because of ethical issues as well as lack of knowledge and absence of peer studies it is difficult to experiment a patient life without oxygen support during moderate hypoxemia.

From the study, out of the 7 cases, 42.81%(n=3) cases were administered with *Arsenicum album*, 42.81 % (n=3) cases with Carbo vegetabilis, 14.2% (n=1) cases with *Kalium iodatum 30*, 14.2% (n=1) cases with *Hippozaenium Q*, 14.2% (n=1) cases with Apis 1X, 14.2% (n=1) cases with *Amyl nitrosum 30*, 14.2% (n=1) cases with Aspidosperma Q. The homoeopathic medicine *Phytolacca decandra*, has an alkaloid namely, phytolaccin, among the many properties, one of them is its capability to reduce the rate of respiration.

Therefore based on the homoeopathic principles it has the efficacy to enhance respiration [9]. In three cases more than one medicine was used, as the most indicated remedy didn't work effectively. Mother tinctures were also used in managing Hypoxemia. Interestingly, the most used potency was lower potency and it turned out to be the most effective one in this study.

The outcome of the study was assessed with scoring criteria (15D-HRQoL) before and after the treatment and in my study, it was found that the homoeopathic medicines along with oxygen therapy are effective in the treatment of palliative care patients having Hypoxemia. In my study out of 7 cases, 71.42 % (n=5) showed improvement and 28.57% (n=2) cases showed no improvement. According to a study conducted by D L Bowton in 100 hospitalized patients; after assessing the pulse-oximeter levels approximately for 24 hours independent of patient management, 26 out of 100 developed hypoxemia which lasted for at least 5 minutes with an oxygen saturation (SpO_2) less than 90%. After an evaluation for 4 to 7 months, 8 (32%) patients suffering from episodic hypoxemia died and only 7(10%) patients without hypoxemia died(from 74 patients out of 100). Thus the severity of hemoglobin oxygen desaturation correlated inversely with survival time [10]. According to an article written by Jeremy R Beitler, ventilation induced lung injury has proven definitively to contribute to the mortality in ARDS patients through mechanisms like barotrauma, volutrauma, atelectrauma and biotrauma. It says that prevention of VILI can help in the attenuation of multi organ failure and can improve survival [11].

In treatment side, the Homoeopathic remedy indication was different in each case. So that selection of remedies are different for different cases. Here, Repertory of Herring's Guiding Symptoms of our Materia Medica by Calvin B Knerr was found effective for prescribing similimum based on objective signs and symptoms. Most of the prescriptions are made with the aid of Knerr Repertory. The effectiveness of this repertory can be determined by using it for various clinical conditions. So, from my study, we can infer that Homoeopathic treatment with oxygen therapy can improve Hypoxemia as well as Quality of Life (using 15D-HRQoL) in hypoxemic patients under palliative care treatment.

Conclusion

The sample for the study consisting of seven Palliative Care patients with Hypoxemia from inpatient department of Sarada Krishna Homoeopathic Medical College and Hospital and the following conclusion were obtained after statistical analysis. It was concluded that males above 6th decades are more vulnerable to develop various Cancer conditions. Persons with Diabetes Mellitus and Hypertension are more susceptible for getting cancer than others. SpO_2 levels are considerably managed through Homoeopathic medicines and Oxygen therapy. The selection of therapeutic similimum has been effective in improving the hypoxemic level and in managing the case as a whole. Homoeopathic Medicines like *Arsenicum Album* and Carbo vegetabilis seemed to be the most effective. The application of Quality of Life scale is limited in the cases of Hypoxemia. Within the limitation before and after scale of 15D-HRQoL in statistical analysis have shown that homoeopathic intervention was highly appreciable with oxygen therapy. Finally, it can be concluded that with Homoeopathic intervention, we can alleviate the sufferings of Hypoxemic patients in palliative care treatment.

Acknowledgment

I heartfully thank the management of Sarada Krishna Homoeopathic Medical College, Kulasekharam for their valuable guidance, constant encouragement and providing basic facilities throughout the study. I am gratified to our colleges who furnished expertise that greatly aid the research, although they may not assent with all of the interpretations provided in this paper. Also, I would like to thank the Central Council for Research in Homoeopathy (CCRH), New Delhi, for giving me this great opportunity to do the short-term studentship research programme.

Financial Support and Sponsorship

Central Council for Research in Homoeopathy, New Delhi, India.

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