

Case Presentation

The effect of respira inhalation on the oxygen saturation of a patient's blood (SpO₂): A Case Report

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Abstract

Introduction: Infection and the accompanying inflammation of the upper and lower respiratory tract, influenza and COVID-19, are among the deadliest diseases in human life in the world. Due to the high emergence of bacterial resistance to antibiotics, we strive to find alternatives to contribute to the treatment by using a new formulation of a mixture of six essential oils in the form of a drop called Respira drops for a therapeutic approach to the upper or lower parts of the respiratory system infection, either by inhalation or sniffing, or by touching it with the body in the form of a skin patch on the head, neck, or chest. The present study suggested that natural essential oils may act as a prophylactic and therapeutic agent in respiratory tract hypoxia, inflammation, and bacterial and viral infection (influenza and COVID-19).

Case presentation: A 62-year-old Yemeni man was suffering from acute pneumonia and had used antibiotics his condition improved, but he was suffering from difficulty breathing and stayed on the use of oxygen at home for more than three months, and his SpO₂ ranged between 75 to 85 and he also suffered from an abdominal hernia, and he went for a procedure Surgery, and when the SpO₂ was measured at 86, the surgery was not completed as a result, so he used Respira drops by inhalation and by steam for twenty-four hours and the next day he went to the hospital and the SpO₂ was measured 96 and the operation was performed and he continued using Respira for two weeks three times per day and his condition improved completely.

Conclusion: The present case study shows the excellent therapeutic response for Respira drops as inhalation and smiling three times per day increased SpO₂ levels which reflect the anti-inflammatory, antimicrobial and anti-viral effects (influenza and COVID-19).

Introduction

Essential oils (EOs) are a mixture of several volatile compounds such as mono- and sesquiterpenoids, and phenylpropanoids, which contain many chemical constituents responsible for their activity. The EOs have good effects as anti-inflammatory in the treatment of inflammation. They can regulate the levels of cytokines and inhibit multiple signaling pathways that trigger responses to inflammation. Many studies reported that EOs have antimicrobial and viral activity. Also, reported that the oxygenated terpenoids in EOs, e.g. alcohols, aldehydes, esters, ketones, peroxides, and phenols lead to an increase the antimicrobial action [1-3]. World Health Organization (WHO) reported that lower respiratory tract infections are responsible for 5% (3.1 million people) of deaths worldwide regarding both sexes. This number was 6% in the female and 5% in the male [5]. Pneumonia was responsible for

13% of causes of death among post-neonatal (1-59 months) children [6]. Lower respiratory tract infections and chronic obstructive pulmonary disease (COPD) have remained the top major killers during the past decade [6]. Although WHO has a well-organized global vaccine action plan against most bacteria or viruses causing respiratory tract infections, many people suffer from influenza, pneumonia, or tuberculosis, and without proper treatment, these diseases can kill many people worldwide. EOs may possess a preventive role in the treatment of respiratory tract infections. The application of EOs via inhalation seems to be the most effective way to cure patients, because of their volatile nature they can reach the site intended to be treated [7]. Many studies found that SpO₂ levels direct correlate with respiratory tract pathology infection, and the SpO₂ levels are proportional to the potency of the immune response in influenza infection as well as the

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Submitted: February 14, 2023

Approved: April 06, 2023

Published: April 07, 2023

How to cite this article: Kadi HO, Mohamed HK, Taha HK. The effect of respira inhalation on the oxygen saturation of a patient's blood (SpO₂): A Case Report. J Pulmonol Respir Res. 2023; 7: 001-003.

DOI: 10.29328/journal.jprr.1001042

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Keywords: Respira; Drops; Hypoxemia; SpO₂; COVID-19





best indicator for evaluating the function and respiratory viral and bacterial infections [8]. Also, pneumonia and bronchitis as well as lower respiratory tract infection were found to correlate with low SpO₂ levels. Therefore, SpO₂ is considered a good indicator of respiratory infection [9,10].

The hypothesis of a new formulation of Respira drops contains a mixture of six natural essential oils like peppermint, clove, ginger, etc oils with different amounts for each one which was done by Prof. Dr. Hussien O. Kadi (Patent). The present study suggested that natural essential oils may be effective as a prophylactic and therapeutic agent in respiratory tract hypoxia, inflammation, and bacterial and viral infection (influenza and COVID-19).

Case presentation

A 62-year-old Yemeni male patient volunteered for taken Respira drops inhalation three times daily for one week. The volunteer gave written informed consent and the Ethics Committee of Yemen University, Faculty of Medical Sciences approved the clinical protocol and have been performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. The patient was suffering from acute pneumonia which was diagnosed by chest X-ray, blood tests and clinical signs. His C-reactive protein (CRP) was 56 mg/L, Hemoglobin (Hb) 9.5 g/L, White blood cells count (WBC) $20.000 \times 10^3 / \text{mm}^3$, red blood cells (RBC) $3 \times 10^6 / \text{mm}^3$ and platelets 120×10^3 then he had used antibiotics and his condition improved, but he was suffering from difficulty breathing and stayed on the use of oxygen at home for more than three months, and his SpO₂ (peripheral oxygen saturation) measured with a pulse Oximeter ranged between 75% to 85% and he also suffered from an abdominal hernia, and he went for a procedure Surgery, and when the SpO₂ was measured with a pulse Oximeter at 86%, the surgery was not completed as a result, so he used Respira drops by inhalation and by steam for twenty-four hours, and the next day he went to the Cairo hospital, Sana'a, Yemen, and the SpO₂ was measured with a pulse Oximeter 96% and the operation was performed and he continued using Respira for two weeks three times per day and his condition improved completely.

Discussion

Many causes of hypoxemia include pneumonia, pneumothorax inflammation, bronchial asthma, and infection like COVID-19 which lead to a decrease in the SpO₂ level and may cause death [11]. Volatile oils are a mixture of several compounds [1114-]. The main ingredients are monoterpene and sesquiterpene, which have antibacterial, anti-inflammatory, and antiviral effects [13]. The anti-inflammatory effect is attributed to the regulation of cyclooxygenase (COX) and the stimulation of the synthesis of nitric oxide (iNOS) and a variety of cytokines, which play

an important role in the inflammatory processes [14]. It also plays a role in regulating the levels of cytokines and inhibiting the signaling pathway that causes inflammation, and because of its complex effect mechanism resulting from the different compounds it possesses. It has an excellent effect in inhibiting signaling pathways such as NF- κ B, MAPK, and AKT. Many of the antigens will be recognized and defined by the corresponding T cell, B cell, and Toll-like receptors, and cytokines such as TNF and IL will be recognized by TNF and IL receptors, which will stimulate the inflammatory signaling pathways. Respiratory diseases associated with bacterial infection and inflammation affect many people of all ages in the world. Because of the easy access of volatile oils to the upper and lower parts of the respiratory system, and their effective effect in cases of influenza, pneumonia, or tuberculosis. And their effective effect as antibacterial, antiviral, and anti-inflammatory, it is considered the easiest and fastest way to prevent and treat [15]. The present study suggests that Respira drops act by removing inflammation and killing bacteria and viruses, if any, thus improving the percentage of SpO₂ and returning to normal within a week. Many studies found that there is a strong relationship between infection of the respiratory system with COVID-19 and pneumonia, as the blood oxygen saturation level decreases to less than 95% measured by pulse oximetry. COVID-19 patients who were admitted to the hospital had a low blood oxygen saturation (SpO₂), as the study suggested that it is an important and good diagnostic and therapeutic indicator for patients with COVID-19 and pneumonia. The deaths of COVID-19 patients in hospitals were associated with a low level of blood oxygen saturation (SpO₂) and they were under receiving oxygen [16-18].

The virucidal effect of essential oils like ginger, thymus, tea tree, lemon, camphor, and peppermint oils against enveloped RNA and DNA viruses such as influenza and COVID-19 was demonstrated [19-22]. On the other hand, chemical constituents of cinnamon, lemon, thyme, and lavender essential oils have been demonstrated potent and effective against H5N1, COVID-19 and influenza. The mechanism of action was reported to cause the disintegration of nucleoprotein core (capsid), inhibit hemagglutinin and growth of virus as well as inhibit the viral redox signaling pathway [23].

The present case study shows the excellent therapeutic response for Respira drops as inhalation and smiling three times per day increased SpO₂ levels which reflect the anti-inflammatory, antimicrobial, and anti-viral effects (influenza and COVID-19).

Conclusion

The current case indicated that Respira drops present a very excellent effect in the treatment of respiratory tract hypoxia associated with bacterial, inflammation, and viral infections (influenza and COVID-19).



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