

Effectiveness of oxygen therapy for cardiac problems



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Oxygen therapy is the administration of oxygen at a higher concentration than that of ambient air. The main intention of this process is to either treat or prevent the symptoms and manifestations of hypoxia. Oxygen therapy decreases the work of breathing by increasing alveolar oxygen tension. As an essential part of clinical practice, oxygen therapy is widely used in cardiac care. Despite all these wide uses of this therapy have been critical in cardiac care. Studies have proved that excessive use of oxygen, results in critical conditions in the areas that it is applied. This essay aims at examining the concentration required, different conditions, where it could be needed and the effects of use of high concentration oxygen for the client with chest pain.

When there is airway obstruction as a result of cardiac effects such as asthma, pneumonia, breathing system of the client becomes complicated. This client can only breathe when the oxygen level climbs above a set level. This will maintain functional ability and at the same time minimize the chest pain, which may have been caused by breathing problem. It is very important to note that there are several causes or conditions that may arise to chest pain (Fritz & Faber, 2012). The different approaches proposed, suggest that these statements and solutions do not conform with the available evidence in the cardiac care. Also, in the treatment of a patient with cardiac problems, the main issue to be considered is the balance of evidence for both the safety and efficiency of oxygen administration in cardiac care.

Arterial oxygen tension is one of the signs to determine coronary artery tone. Slight increment in arterial oxygen reduces coronary flow irrespective of prior saturation (Atar, 2010). The human study of patients with cardiac problems hyperoxia from concentrated oxygen therapy reduces coronary

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blood flow (Atar, 2010). Administering oxygen therapy to patients with myocardial infarction, oxygen therapy can reduce cardiac output volumes, and blood pressure and vascular resistance (Atar, 2010). There is evidence in determining safety and efficiency of oxygen administration in cardiac care. The evidence supports use of oxygen therapy in minor myocardial infarction results in increased death rates to the patients.

Research has approved that resuscitation from cardiac arrest; administration of high oxygen results in hypoxia. This is directly associated with more deaths to patients in comparison to either normoxia or hypoxia problems.

Continuous use of oxygen therapy in cardiac care is harmful to the patient of cardiac problem and this approach is not the best. It is recommended that, the administration of oxygen therapy should be at the level of 96% to keep standardized saturation (Bersten & Soni, 2009). Also, oxygen need be administered for definite cardiac cares, in which benefit of oxygen therapy outweighs the risks it may impose to the patient. Healthcare professionals should take into account that the method, dose and delivery period is clearly spelt and patient's reaction to oxygen administration is thoroughly monitored (Fritz & Faber, 2012).

Since oxygen is a drug, its administration requires a medical order. Each of the episodes of oxygen delivery should be ordered on the medication chart either as on-going or one-off treatment. There are some conditions that should be examined before the nurse initiates oxygen. First, the nurse should realize that the patient has breached expected normal parameter of oxygen saturation, also a medical review is required within thirty minutes and then at the time of the medical review, the right prescription of oxygen should be

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written. Before the selection of the delivery method, caregivers should check at the individual flow meter for where to read the ball when setting the flow rate (Straface et al. , 2008). Some of the flow meters may register greater than the maximum flow indicated in the meter in the case of the ball being set above the highest amount (Hunt, 1999). The nurse is required to use caution when adjusting the flow meter. All of the high concentration or delivery requires humidification. The selection of the humidification will depend on the oxygen delivery system in use. It should be noted that, air entrainment devices are not effective when it comes to delivering FiO_2 that is greater than 50%. Administration of high concentration of oxygen to clients with chest pain may worsen the pain, when breathing elevated pressure of oxygen is extended for a longer period (Myers et. al. , 2008).

There has been a growing debate and concern on the administration of high oxygen concentration to those clients with chest pain (Frey & Shann, 2003). Traditionally, for over a decade, patients who complained of chest pain were instantly administered high flow of oxygen, this process initially started when medics realized that oxygen would ease myocardial ischaemia in patients with acute coronary syndrome (ACS). Also, high oxygen concentration may cause atelectasis. The alveoli relies on nitrogen to preserve surfactant creation and alveolar power. The high concentration of oxygen, when administered may wash out nitrogen and leave the alveoli susceptible to a lack of gas as the gas diffuses to blood (Shekhar et. al. , 2010).

It is important to note that; high oxygen concentration to those patients with cardiac problems, do not yield much advantage. This practice quickly became <https://assignbuster.com/effectiveness-of-oxygen-therapy-for-cardiac-problems/>

a routine in patients presenting with acute chestpain(Robyn and Coffee, 2012). Recently there has been a report indicating that harmful effects of high flow of oxygen in ACS patients where the patient may not be hypoxic. High flow of oxygen has previously been associated with a reduction of cardiac output, attribute to arterial vasoconstriction and also it increases systemic vascular resistance. In more recent evidence, systematic review shows that the routine use of high concentration on chest pain may lead to greater infarct size increasing the risks of mortality.

From a physiological perspective, treatment of ACS' patients with oxygen seems reasonable. For a patient suffering from ACS, there is a lack of myocardial perfusion and less oxygenation of the myocardium. In this context, it seems logical to increase the oxygenation of the blood. This treatment is not well thought and can lead to patient harm, if not well monitored. The bottom line is that, the drug that is often used can cause harm if it is given without a good reason, when there is less saturation of oxygen in a patient's blood, oxygen cannot help them with shortness of breath, and it may hurt them instead. The same idea holds true for the neonates and any of patients with ongoing tissue injury from MI, stroke or trauma it is true that oxygen can be bad when not well monitored in administration (Myers et. Al. , 2008).

The hemodynamic effect of high flow of oxygen in the myocardial was explored by groups to improve on the cardiac care. The cardiovascular response to high concentration of oxygen was primarily attributed to arterial vasoconstriction; this has been demonstrated in retinal blood vessels. This method was also thought to be the reason behind the reduction in renal
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blood flow of cerebral blood flow with oxygen therapy. Research has demonstrated that high concentration of oxygen cannot increase its transport in patients with arterial oxygen saturation to a level of less than 90%. This is explained by the notion that the reduction in cardiac output in excess leads to increases in oxygen content. In patients with arterial oxygen saturation of less than 90%, this shows that oxygen administration increased oxygen transportation (Campbell & Silver, 1998). This is due to both increased cardiac output and oxygen content. In the recent years, researchers have provided clear and direct evidence that the administration of high flow oxygen reduces coronary artery blood flow for the stable patient with ischaemic heart effect. This evidence was provided over a decade ago, and this has been confirmed the method of high oxygen concentration may change, but the effects of oxygen on the cardiac care remain the same.

In conclusion, it is important to note that it is not clear whether routine administration of oxygen in patients' with cardiac problems in relation to chest pain has all the positive impacts on the outcome (Hunt, 1999). This systematic review challenges the status quo predicted by the international guidelines on the treatment of the chest pain caused by cardiac problems. The argument of reduced mortality due to administration of concentrated oxygen to patients with cardiac problem is disturbing. There is no need to administer a method of treatment on a patient in which the negative impacts outweighs the gain. The different approaches in tackling this major problem of chest pain gives a clear evidence and explanation of the conditions in which a patient is to be administered with concentrated oxygen. Before any treatment is done for patients with chest pain, caregivers should try to

understand the cause of the pain(Campbell&Silver, 1998). For example, the pleuritic pain is triggeredby chest movement and it is severe during coughing. Splinting the chest wall will help in reducing the discomfort of coughing. Cardiac care is involved with a lot of approaches that need to be looked at before treatment is undertaken.

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