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RECOVERY POSITIONS FOR UNCONSCIOUS PATIENT WITH NORMAL BREATHING: AN INTEGRATIVE LITERATURE REVIEW

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ABSTRACT

Background: The study of recovery position has become an important aspect of life-saving in certain situations such as cardiac arrest, accident victims and other medical problems. Nevertheless, there are only a little information revealing recovery position on unconscious people but breathing normally. **Aims:** This integrative literature review aimed to identify the best position for unconscious people who are breathing normally by analyzing each position comprising lateral recovery position, HAINES position, and lateral trauma position. **Methods:** The literature search consisted of electronic databases such as CINAHL, PubMed/ Medline, and Google Scholar was performed using the terms recovery position, unconscious, breathing with excluded children and baby. Only articles with the English language, published between 2009 and 2018 were included. **Results:** Five articles were included in this review. All of the articles were academic journals type. Three articles seemed to use the experimental method with a human subject or cadaver. One article was likely a literature riview and the last was a letter to editorial. **Conclusion:** There were four positions considered as the best recovery position based on the medical situations: lateral recovery position, Haines Position, The modified HAINES position, and lateral trauma position. Further research is needed to obtain more evidence.

Keywords: Recovery Position, Unconscious People, Breathing Normally

INTRODUCTION

The study of recovery position has become an important aspect of life-saving in certain situations such as cardiac arrest, accident victims and other medical problems. Nevertheless, there was only a little information revealing recovery position on unconscious people but breathing normally.

Recovery position is the position indicated in medical situations where someone presents or has presented a change in the level of consciousness or problems of nausea and vomiting. This position is used to hinder airway obstruction by the tongue, secretions, blood or vomit. It is usually recommended to facilitate blood circulation (The Commission de la santé et de la sécurité du travail, 2008). Even if the someone is breathing but unconscious, there is still a significant risk of airway obstruction. The recovery position can reduce the risk towards the patient (Nordqvist, 2018).

There are a variety of recovery positions, each of which have its own advantages. There is no single position that is perfect for all victims (Handley, 1993; Turner *et al*., 1998). According to The 2010 Guidelines of American Hearth Association (AHA) for CPR and ECC, an unresponsive person should be placed in the Modified High Arm in Endangered Spine (HAINES) recovery position, particularly when that person suffered an injury. The 2010 guideline was changed in 2015 stating that when treating unresponsive person with normal breathing, and without major trauma such as the spine or pelvis, placing the person into a lateral or

side-lying position can improve airway mechanics. The HAINES recovery position is no longer recommended, due to the paucity and very low quality of evidence to support this position (American Heart Association, 2015). Moreover, Zideman *et al.*, (2015) stressed that in certain situations such as resuscitation related agonal respirations or trauma, it may not be appropriate to move the individual into a recovery position. Furthermore, the media online information recently reported that recovery position should not be used on most casualties (The Telegraph, 2017; Adams, 2017).

The purpose of this literature review was to identify the best position for unconscious people who are breathing normally by analyzing each position comprising lateral recovery position, HAINES position and lateral trauma position.

METHODS

With the purpose to elicit the current knowledge regarding recovery position for unconscious patient with normal breathing, the framework of Whittemore & Knafl (2005)'s integrative review was utilized. This framework has five stages of implementation, namely: 1) Identification of the problem 2) Literature search/ review stage; 3) Evaluation of the data; 4) Analysis of data under the following headings: data reduction, data display, data comparison, conclusion drawing and verification; and 5) Disseminate findings (Christmals & Gross, 2017). The literature search included searching relevant electronic databases such as CINAHL, PubMed/ Medline, and Google Scholar. Databases were searched using the terms recovery position, unconscious, breathing with excluded children and baby. Inclusion criteria was deliberately nonrestrictive. English language articles with publication dates between 2009 and 2018 were included.

RESULTS

The literature search above yielded 274 articles. But after being reduced by repeatation of articles, inaccessible and not in accordance with the inclusion criteria, only 5 articles were matched. All of the articles were academic journals type. Three articles seemed to use the experimental method with a human subject or cadaver. One article was likely an literature riview and the last was a letter to editorial. The characteristics of reviewed articles can be seen in table 1.

Table 1: The Characteristics of Articles.

First Author, Year, Journal Name, Volume	Country	Type of publication	Method/ Study Design	Subject
Freire-Tellado *et al*., (2017), *Resuscitation*, 115.	Spain	Journal article	Quantitative research/ A human simulation test	Human
Hyldmo *et al*., (2016), *Acta Anaesthesiologica Scandinavica*, 60.	Norway	Journal article	Quantitative research/ A Cadaver model study	Cadaver
Jevon (2015), *Dental Nursing January*, 11.	UK	Journal article	Unclearly stated (it is likely a literature review)	-
Freire-Tellado (2016), *Resuscitation*, 105.	Spain	Journal article	Letter to editor (improvement proposal)	-
Del Rossi (2015), Prehospital Emergency Care, 18	USA	Journal article	Quantitative research/ Cadaveric investigation	Cadaver

Variations of the Recovery Position

The only theme that emerged in this review was the variations of recovery position. As stated at the preliminary of this review that recovery position has several variations with its own advantages. Those variations of recovery positions comprised of lateral recovery position, HAINES (High Arm In Endangered Spine) position, the modified HAINES position, the lateral trauma position (Hyldmo *et al.*, 2016).

The lateral recovery position was typically done by rolling victims onto their side with the nearside arm perpendicular to their body, while far side arm was placed across the body and hold the back of hand under the cheek. The far side of the leg was flexed at 90° with the foot flat on the floor before the victims were rolled onto their side. Eventually, the far side was supported by the near side leg in a flexed position. Whereas the near side leg was remained straight (Jevon, 2015; Hyldmo *et al.*, 2016).

Figure 1: Lateral Recovery Position

The HAINES Position was maintained by turning the victims on the side with the near side arm fully abducted and both legs bent at the knees. After the victims were positioned, the head was stabilized on the fully abducted arm. This position is also called HAINES 2 (Hyldmo *et al.*, 2016). On the other hand, the modified HAINES position is identical to HAINES 1 except that only the far side knee was bent in a 90° position prior to turning the victims (Hyldmo *et al.*, 2016).

Figure 2: The HAINES Position, both two legs flexed (HAINES 2).

Figure 3: The Modified HAINES Position, only one leg flexed (HAINES 1)

Lastly, the lateral trauma position (LTP) was done with two helpers. One helper manually immobilized the head and neck of the victim while a second helper placed a standard semi-rigid cervical collar on the victim's neck. The second person then angled the victims far side knee, leaving the nearest leg straight, and extending the nearest arm 90° to the torso. The second helper gripped the far side shoulder and hip, and the victim was logrolled into the LTP while the first person coordinated the maneuver and maintained manual in-line stabilization. Padding was placed under the head to allow a neutral alignment of the spine (Hyldmo *et al.*, 2016).

Figure 4: Lateral Trauma Position, involves two rescuers during turning and a cervical collar.

DISCUSSION

Lateral recovery position typically called as just "recovery position", is described as a safe lying position in which people should be positioned when they are unconscious so that they can continue to breathe (Cambridge Dictionary, 2018). Further, Monsieurs *et al.*, (2015) stated that individuals who are unresponsive but breathing normally were posed into a lateral, side-lying recovery position as opposed to leaving them supine (lying on back).

The Indication of Recovery Position

As stated above that there were four variations of recovery position. The question that emerged in this review was what is the best position for patients who are unresponsive but breathing normally. In general, the recovery position is recommended for a patient who is unconscious but breathing normally. This position is typically used in certain medical situations such as following a major seizure, hypoglycemic coma, post-successful cardiopulmonary resuscitation, following administration of certain medications e.g. midazolam along with stroke and alcohol intoxication (Jevon, 2015). Yet, in particular conditions such as resuscitation-related agonal respirations or trauma, it may not be appropriate to move the individual into a recovery position (Monsieurs *et al*., 2015). The recommended recovery position is modified from supine to a lateral side-lying position for patients without the suspected spine, hip, or pelvis injury. There is little evidence to suggest that any alternative recovery position is of greater benefit for an individual who is unresponsive and breathing normally (Singletary *et al.*, 2015).

In trauma cases, the best position for unconscious patients with normal breathing is still arguable. Del

Rossi *et al.*, (2014) implied that both lateral recovery position and HAINES position can be used. There was no single version can be endorsed. Contrary, Hyldmo *et al.*, (2016) suggested that the Lateral Trauma Position or the HAINES 1 or 2 should be preferred to the recovery position. Previously, Haines (1996) proposed HAINES position as an alternative option for unconscious patients with a suspected neck injury. Blake *et al.*, (2002) preferred using the modified HAINES position over lateral recovery position in the management of patients with trauma. Afterward, Fattah *et al.*, (2011) reported that the majority of Norwegian EMS implemented and used lateral trauma position in their emergency medical services despite little evidence as to its possible benefits and harms.

The second emerging question in this review was which side of position is the best for recovery position. Jevon (2015) stated that both sides can be used depending on the surrounding environment. If, for example, the victim fainted near the wall, then the helper had to roll away from the wall. Except in the pregnant victims, the left side lying recovery position is preferred (International Federation of Red Cross and Red Crescent Societies, 2016).

The last question was what are the advantages and disadvantages of each position are? This question is a critical point in determining what position should be implemented in case of unconscious patients with normal breathing. In general, recovery positions were used for unconscious victims to maintain a patent airway, reduce obstruction, and prevent aspiration (Jevon, 2015). Hyldmo *et al*., (2015) observed that the lateral position was associated with improved airway patency compared to the supine position. But recently, there has been an improved proposal that the victim should be maneuvered to keep the airway open (head-tilt/chin-lift maneuver) with continuous assessment of adequate breathing until the arrival of Emergency Medical Services (EMS). The proposal was based after the study of many cases where unconscious victims with recovery position were not detected appropriately and suffered subsequent loss of breathing and no Cardiopulmonary resuscitation (CPR) was given by the first bystanders, even though one of them was a doctor (Freire-Tellado *et al.*, 2016). The comparisons of the advantages and disadvantages of each position can be seen in table 2. In an unconscious patient with trauma, HAINES or lateral trauma position is preferred to recovery position due to its protection on the spinal instability.

Table 2: Comparisons of Advantages and Disadvantages amongst Recovery Positions

Positions	Advantages	Disadvantages
Lateral Recovery Position	• Helps to maintain a patent airway (Hyldmo, 2016) • Reduces the risk of airway obstruction and aspiration (Jevon, 2015). • Needs only one rescuer (Hyldmo, 2016).	• Produces a significant spinal range of motion in the servical area • Increases the risk of additional spinal injury (Hyldmo *et al*., 2016). • Hinders breathing assessment, • Delays breathing arrest identification and the initiation of cardiac compressions, and • Significantly increased the likelihood of not starting cardiopulmonary resuscitation (Freire-Tellado *et al*., 2016, Freire-Tellado, 2017).
HAINES Position (HAINES 1)	• HAINES 1 creates less motion in the cervical area (Hyldmo *et al.,* 2016). • Needs only one rescuer (Hyldmo, 2016).	Not stated
The Modified HAINES Position (HAINES 2)	• Creates less motion in the cervical area (Hyldmo *et al*., 2016) • Needs only one rescuer (Hyldmo, 2016).	Not stated
Lateral Trauma Position	Creates less motion in the cervical area (Hyldmo *et al*., 2016).	• Needs at least two rescuers (Hyldmo *et al*., 2016) • Needs a neck collar and active stabilization of the head when turning. Neck collar may contribute to raised intracranial pressure of the victim (Hyldmo *et al*., 2016)

CONCLUSION

It can be concluded that:1) The best recovery position for unconscious patient with normal breathing is lateral position; 2) There are no best side of recovery position as both right and left side could is suitable for unconscious patients, except for pregnant women the left side was preferred; 3) In case of unconscious person with trauma, HAINES 1 or 2 along with lateral trauma position were the best options. It was evident that researches in the emergency field were very limited. That is why this observations needs further studies and evidences that might change the present findings and inference based on the new findings. Further research is needed to obtain more evidence.

Consent

Informed consent was obtained from the volunteer models for publication of the accompanying figures.

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