

**比較 Swivel Adapter 轉接器抽吸與密閉式抽痰法之避免心肺功能不良反應、呼吸器相關性肺炎發生率與成本效益之差異**

**Comparison of the Impact of Swivel Adapter Connection Suction Method and Closed Suction System to Obviate Adverse Event of Cardio-Pulmonary Response, VAP Rates and Cost effective With Patients Used Mechanical Ventilation**

**中文摘要**

執行人工氣道抽痰之護理措施常造成危險合併症發生，包括：低血氧、肺部擴張不全、心律不整，顱內壓增高、甚至心跳驟停、窒息等。選擇安全及有效抽痰法是人工氣道照護之當務之急。目前臨床抽痰方法以開放式抽痰為主，但因執行過程需與呼吸器管路脫離，常造成低血氧等併發症；故相繼有 Swivel Adapter 轉接器抽吸與密閉性抽痰的出現，目前研究指出 Swivel Adapter 轉接器抽吸使用比開放式抽痰有較少低血氧、心律不整等發生。而使用密閉式抽痰發生心肺併發症相較於開放性抽痰較低，但缺點為呼吸道分泌液不易清除及成本效益較昂貴等，且兩者在呼吸器相關性肺炎之發生率無顯著差異。然而，密閉式抽痰法與 Swivel Adapter 裝置抽痰之成效差別至今仍未有文獻探討。

有鑑於此，本研究欲探討使 Swivel Adapter 轉接器抽吸與密閉性抽痰法引起之心肺功能反應、呼吸器相關性肺炎發生率與成本效益之差異，研究將係類實驗設計法，以北部某醫學中心的胸腔加護單位使用呼吸器的病人為研究對象，共收案 90 人。研究工具包括基本屬性量表、動脈血氧分壓、動脈血氧飽和度、心跳、血壓以及收集呼吸器相關肺炎的發生率與成本效益之兩者間差異。研究資料以百分比、平均值、標準差、卡方檢定、paired-t 檢定及重覆測量變異數分析進行分析。期望透過研究實證後，提供臨床選擇為使用呼吸器病人安全有效之抽痰方法。研究結果顯示 Swivel Adapter 轉接器抽吸法與密閉式抽痰法與對動脈血氧分壓於抽痰過程及組間變化幅度之差異均顯著高於開放式抽痰法( $p < .05$ )，兩種抽痰法，組間差異以 Swivel Adapter 轉接器抽吸法所測得動脈血氧分壓較高，但無顯著差異( $p > .05$ )，故 Swivel Adapter 轉接器抽吸法與密閉式抽痰均比較適合提供給預防抽痰引發血氧過低的急性肺損傷與 ARDS 病人等；Swivel Adapter 轉接器抽吸法與密閉式抽痰法對心跳次數與平均動脈壓於抽痰過程之幅度變化無顯著差異( $p > .05$ )；Swivel Adapter 轉接器抽吸法與密閉式抽痰法對 VAP 發生率無統計上顯著差異( $p > .05$ )。而開放式抽痰組 VAP 發生率顯著較高( $p < .05$ )；開放式抽痰法在每日抽痰耗材平均費用顯著較其他兩組少( $P < .05$ )；密閉式抽痰組在抽痰之每日護理費用與一次抽痰花費時間顯著少於其他兩組( $P < .05$ )。

經由 Swivel Adapter 轉接器抽吸法與密閉式抽痰法等介入實施後，提供臨床醫護人員為呼吸器成人患者依據其疾病特性尋求適宜的抽痰法，以避免因抽痰過程引發之合併症，並能節省抽痰成本之耗費，進而降低 VAP 發生率以及縮短在加護

病房的住院日期、呼吸器使用天數以及抗生素使用天數等，故此介入性措施或值得推廣於使用呼吸器病患，以降低醫療成本與提昇醫療品質。

### 英文摘要

The implementation of artificial airway suction measures of care often result in dangerous complications, including: low oxygen, the lungs expand insufficiency, cardiac arrhythmias, intracranial hypertension, and even cardiac arrest, asphyxia, etc.. Choose safe and effective suction artificial airway is a priority of care. Clinical approach to the current open-ended suction suction mainly because of the implementation process from the ventilator circuit and often result in complications such as low oxygen; they have been there Swivel Adapter adapter and suction aspiration and confined the the emergence of the present study pointed out that the adapter Swivel Adapter aspiration than open suction have fewer low-oxygen, such as arrhythmia occurred. The use of closed suction cardiopulmonary complications occurred in comparison to open lower suction, but has the disadvantage for the respiratory tract secretion and cost-effectiveness is not easy to remove, such as the more expensive, and two of ventilator-associated pneumonia was no significant difference in the incidence of . However, the closed suction method and Swivel Adapter difference in the effectiveness of suction devices has yet to explore the literature

In view of this, so this study wishes to explore the Swivel Adapter adapter suction aspiration with the closed method of cardiopulmonary-induced response of ventilator-associated pneumonia incidence and the difference between the cost-effectiveness study will be the Department of quasi-experimental design to a medical center in the northern part of the thoracic intensive care unit patients to use breathing apparatus to study the object, the case received a total of 90 people. Research tools, including the basic properties of scale, blood pressure, arterial oxygen saturation, heart rate, blood pressure, as well as the collection of ventilator-associated pneumonia incidence and cost-effectiveness of the differences between the two. Research data as a percentage, mean, standard deviation, chi-square test, paired-t test and ANOVA repeated measurement analysis. Is hoped that through the empirical study, the clinical selection of patients for the use of breathing apparatus the suction method is safe and effective.

The results showed that adapter Swivel Adapter closed suction method and suction method and suction on the arterial partial pressure of oxygen in the process of change and magnitude of inter-group differences were significantly higher than the open suction method ( $p < .05$ ), two suction method, inter-group differences in adapter Swivel Adapter liposuction measured higher arterial partial pressure of oxygen, but

there was no significant difference ( $p > .05$ ), it is Swivel Adapter adapter with the confined liposuction suction-type are more suitable for the prevention of suction provided to the low oxygen induced lung injury and ARDS patients; Swivel Adapter adapter closed suction method and suction method of heart beat frequency and mean arterial pressure in the suction process The rate of change was no significant difference ( $p > .05$ ); Swivel Adapter adapter closed suction method and suction on the incidence of VAP without statistically significant differences ( $p > .05$ ). Open suction group and the incidence of VAP significantly higher ( $p < .05$ ); open-suction method in the daily average cost of supplies suction significantly less than the other two groups ( $P < .05$ ); closed suction group in the suction of the cost of daily care to spend time with a suction significantly less than the other two groups ( $P < .05$ ).

Swivel Adapter adapter through the suction method and closed suction method to intervene after the implementation of clinical nursing staff to provide respirators in accordance with their adult patients with the disease characteristics of the search for appropriate suction method in order to avoid complications induced suction process and the cost savings in the cost of suction, thus reducing the incidence of VAP, as well as shorten in the intensive care unit of the hospital date, ventilator days and the number of days, such as use of antibiotics, it should be involved in the promotion of measures or the use of mechanically ventilated patients in order to reduce the health care costs and enhance quality of care.