使用直昇機空中緊急救護高樓火災災民逃生之成效研究

The Application of Helicopter Rescue for Fire Caualties in High-Rise Buildings

中文摘要

背景：火災造成人員死亡佔意外事故的第 6 位，台灣地區火災死亡人數，雖因消防設備及逃生路徑之改進而逐年下降，近九年每年平均死亡人數仍有 235 人及受傷人數約有 500 至 800 人。另外尚有房屋財物的損失約二十億新台幣以上。火災發生的地點，半數於建築物。建築物火災之人員逃生及救援刻不容緩。常發生之困難包括：巷弄狹小、巷弄違規停放車輛、住家安裝鐵窗、住家外牆附置廣告招牌、屋頂平台違建、雜物堆放於逃生出口、建築物高度不斷增高、消防雲梯車高度的極限、以及救生氣墊使用的限制等等。使得高樓火災之逃生及救護困難性增加。故傳統之消防救護常面臨災民冒生命危險跳樓逃生之驚悚狀況，我國近年來發展空中緊急救護，本研究係探討空中救護對高樓火災逃生之相關問題。

材料與方法：以問卷調查的方式進行研究。問卷的對象爲，民國 94 年於兩次在高樓火災中，被直升機以空中掛吊救援逃生的民眾。問卷的內容，包括火災發生前、逃生時及逃生後等各項相關問題。

結果：問卷調查回收的結果，排除了無法取得聯絡方式的 2 位民眾。實際收案共有 11 位，平均年齡爲 30.9 歲，男性 4 位，女性 7 位。主要結果有下述三大項。第一、火災發生前：(1)有接受過火災逃生教育或課程訓練的爲 54.5%，(2) 知道有大樓火災空中救護的爲 0%。第二、火災逃生時：(1)知道火災樓層所在位置的爲 0%，(2)不知道逃生方向該往上方還是往下方的爲 100%，(3)選擇逃生方向的原因是以個人直覺的爲 18.2%，(4)跟隨別人逃生的是 81.8%， (5)曾有先往下逃生的爲 100%，(6)知道如何使用空中吊掛設備的爲 0%。第三、火災逃生後：(1)有發現受傷或身體不適的爲 0%，(2)有因火災相關緣故而去就醫的爲 0%，(3)對於使用空中救護協助大樓火災成效肯定爲 100%。

結論：(一)高樓火災逃生事故發生前期:民眾普遍對於消防教育認知不足，尤其對於空中救護的認知更加的缺乏，政府應要加強對民眾宣導防災與消防逃生的觀念。(二)逃生事故發生時期：民眾在逃生時應不要慌張而有計劃性，可使用行動電話連繫再根據個人消防逃生認知來逃生。政府應考慮將空中吊掛方面的知識，納入一般消防教育課程內。(三)逃生事故發生後期：民眾只要能平安地到達屋頂平台，其逃生的機會必然大增。未來高樓之建築物必定是越蓋越多且越高，救護的困難度也隨之增加，相對地，行動電話通訊愈來愈普及，報案請求空中救護之機率增加及速度加快，採取空中救護必定是未來的趨勢。

英文摘要

Title：The Application of Helicopter Rescue for Fire Casualties in High-Rise

Buildings

Background: In recent ten years, the average death toll of the fire in Taiwan was about 225 persons per year, and the injured victims were about 500-800 persons per year in Taiwan. Half of the fire casualties took place inside the buildings, and the cost of buildings and property damage was at least two billion N.T. dollars in Taiwan each year. When fire arose inside the buildings, it is particularly difficult of personnel flee and performing the rescue. There were many status including the alleys were narrow; illegal parking in the alleyways; installing of the metal window frames or advertising signboards outside of the buildings; constructions without license on the roof platform of the buildings; piling up objects to block the emergency exits; more and more skyscrapers make the availability of aerial ladders and air cushions become limited. Fire casualty in high-rise buildings augments the degree of difficulty in personnel flee and ground rescue.

Material and Method: We used questionnaires to investigate the opinions from the victims who experienced two previous fire accidents and were successful rescued by the helicopter ambulance from high-rise buildings. The contents of our questionnaires were divided into three parts including the knowledge of victims about fire rescue before it attack, how to escape from the scene, and which damage they suffered from the fire accidents.

Results: We had retrieved 11 questionnaires totally after excluding two persons whom we could not make contact with. The accepting cases included four males and seven females, and the mean age of them was 30.9 years old. The main results were divided into three aspects to descript. First, there were 54.5% of our participators received the education or training course about how to flee from fires before the fire took place. However, none of them had ever heard about the helicopters rescue. Second, when these victims tried to escape from the fire, none of them was aware of the starting point of the fire in which floor and all of them did not know the direction should be upstairs or downstairs to flee. Everyone among all participators chose downstairs to flee; because of they trusted their personal intuition which account for 18.2%, and 81.1% of them merely followed others to flee. Moreover, none of them understood how to use the hoist equipment. Third, no body got injury or felt uncomfortable after they escape from the fire. Therefore, none of them was sent to hospital or needed medical aid. In my personal opinion, the helicopter rescue has great expectations in fire accidents of high-rise buildings.

Conclusion: People are commonly lack of cognition to fire education, especially the helicopter rescue. The government should strengthen and declare the education about the precautions against fire to the people. When people encounter the fire accidents, they should have a plan to run away according to their knowledge about fire education.

Moreover, the government should consider that subsuming the knowledge about helicopter hoist equipment into general education of fire control. Victims had great chance to be rescued if they can reach platform on the roof safely and use their cellular phone. In present trend, there will be more and more high-rise buildings to be constructed. Therefore, the difficulties of the rescue become rising. It must be a trend in the future to adopt and give first aid by helicopter rescue, and people also possess a positive attitude to helicopter rescue in fire accidents of high-rise buildings.