

[Reserches]

## Does a Helicopter Shorten the Time Required to Start Initial Treatments in the Northern Area of Okinawa Prefecture ?

[調査報告]

沖縄県北部地域においてヘリコプターは  
初期治療開始に要する時間を短縮するか

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goal of the interval from emergency call to starting on-site medical treatments is less than 20 minutes even in mountainous areas<sup>7)</sup>. These data could be one of effective index values in HEMS, but the question whether our time value is proper or not in our region has remained. Emergency vehicles such as public ambulances or Doctor-Car may be good candidates for the comparison group, but it is worried that there is a significant locational bias between the cases of HEMS and land route transfers. In cases which did not require HEMS, emergency scenes tended to be relatively close to the hospital<sup>8)9)</sup>.

In this study, we set two imaginary values, such as EAT and EDT. To calculate them, TT is the most important factor and it was based on the information of local fire station staffs. In this area, there are only two emergency hospitals capable of accepting severe emergency patients. Besides, main roads suitable for traveling of emergency vehicles are limited and few traffic jams occur. These circumstances could make TT, EAT, and EDT realistic.

As the result, our HEMS could significantly shorten the starting time of initial treatments in comparison with ambulances and Doctor-Car. The time effect of HEMS was just only about four minutes compared to Doctor-Car (26' 47" vs 31' 10"), but the statistical significant difference was recognized. It should be emphasized that EDT in this study was the shortest time that we could estimate. In actual operations that use Doctor-Car, it would have been longer than this calculated time because it usually requires the time to prepare Doctor-Car, the time to look for an ambulance on a route, the time to find a safe stop place, and the time to get into an ambulance from Doctor-Car.

However, in terms of current drawbacks of HEMS, this study clarified that helicopters were not always able to shorten the starting time of

initial treatments. There were 47 cases that patients would have been treated earlier if Doctor-Car had been used instead of a helicopter. Among many factors concerning whether HEMS can shorten the starting time of initial treatments, the distance from a hospital to the emergency scene may be one of the most pertinent factors<sup>5)9)</sup>. We have to establish the standard protocol for dispatch in the choice of helicopter or Doctor-Car.

Finally, our object was to compare the time required to start initial treatments between HEMS, ambulance, and Doctor-Car, but clinical outcome of patients was not designed. Further studies will be necessary to confirm whether our HEMS really improved the prognosis of patients, though the time from incident to initial treatment being started is considered to be influential factors determining patient outcome<sup>10)</sup>.

## Conclusion

It was suggested that HEMS significantly shortens the time required to start initial treatments in the northern area of Okinawa Prefecture in comparison to ambulances and Doctor-Car. We hope that our study adds a small step toward improving insufficient medical circumstances in this area.

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## 【調査報告】

# 沖縄県北部地域においてヘリコプターは初期治療開始に要する時間を短縮するか

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## 【要旨】

**諸言：**MESH (Medical Evacuation Service with Helicopter) は、沖縄県北部でヘリを用いた医療を行う民間組織であり、その主な役割は救急現場に医師や看護師を派遣し、早期の初期治療を開始することである。我々はヘリが早期の初期治療開始に貢献できるか否かを確認した。

**方法：**実際の救急現場出動236件において、初期治療開始に要した時間（消防覚知から初期治療開始）を後方視的に調べた。比較群として、予想救急車搬送時間（Expected Ambulance transporting Time：EAT）と予想ドクターカー時間（Expected Doctor-Car Time：EDT）の2つの値を設定した。EATは、もしもヘリがない場合、救急車が患者を病院に搬送するのにどのくらい時間を要するかを示す机上の値、EDTはドクターカーを使用したときに現場や路上での診療開始にどのくらい時間を要するかを示す机上の値である。

**結果：**ヘリは消防覚知から初期治療開始まで平均26分47秒を要していた。これと比べると、EATとEDTはともに有意に長かった。

**結論：**ヘリは、沖縄県北部において初期治療開始に要する時間を優位に短縮する可能性が示唆された。

## 【キーワード】

沖縄県、ヘリコプター、MESH、初期治療