

互動式心房顫動智慧醫藥平台

內科部

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摘要

目的:

心房顫動最為常見的心律不整，有超過1%的盛行率，會增加病人五倍以上中風機率。然而，現今未有完整的全人、智慧化心房顫動醫藥平台，提供實證醫藥資訊與個人化評估，故本團隊建立此平台涵蓋心房顫動全方位ABC治療：**Anticoagulation/avoid stroke**抗凝用藥預防中風、**Better symptom control**控制心律提升生活品質、**Cardiovascular and comorbidity optimization**共病與風險管理。北榮病友進一步提供加值服務，可與醫院串連，以自身參數運算中風風險與術前停藥方法，並以互動化圖示說明評估結果。

研究方法:

短期指標為節省的人力工時、病人轉介抗凝血藥師門診之用藥相關問題 (drug-related problems, DRPs) 變化。因所提供之醫藥資訊會依使用者臨床狀況調整，更符合個人化衛教，故採用互動式網頁方式開發，可使醫師、藥師或民眾於網頁上點選個人疾病與相關資訊，並透過後端智能運算已設計完成計算方式，預測個人化風險。使用抗凝血劑病友接受手術前的停、復藥評估，以病友與個人參數搭配術式風險進行智能評估產生的停藥計畫，使用者可以將相關資訊儲存或列印停藥評估單張，供後續參考使用。後續可以系統自行發送問卷調查，或是由醫療人員電話追蹤術後用藥狀況。

主要發現:

1. 建立系統平台整合與用戶端分級:

用戶端可以訪客或心動之友進入本系統。訪客可從4種模擬人物自行擇一體驗網站，內建個人化評估所需參數，提供系統進行智能運算。另有會員加值服務，本院心臟科門診病友經資安驗證後，可由HIS系統取得個人化檢數據、用藥紀錄與診斷，供智慧化運算與評估。

2. 為什麼要用抗凝血劑? 瞭解我的中風風險

以模擬人物的參數或會員之個人資料運算CHA2DS2-VASc Score (中風風險評分)。採視覺化呈現每年每100位之中風風險，亦提供用藥後可減少每年每100人之中風風險。視覺化呈現能讓使用者更清楚理解其差異性。

3. 智慧運算使用抗凝血劑病人接受侵入性診療之停藥方法

本功能兼具智慧化個人評估與友善停藥指導。手術醫師可調整術式出血參數、病人出血或栓塞風險，再次進行運算。本功能提供平台供跨專科、跨職類共同照護以降低停藥時間不足可能發生不必要的出血，或停藥時間過長導致中風或栓塞事件。

結論:

本平台涵蓋完整互動式心房顫動ABC照護服務，**A**：抗凝用藥照護，一般訪客可從4個模擬人物擇一進入網站體驗，北榮病友可以自身參數進行個人用藥評估、**B**：展延實境 (XR) 心房顫動電燒手術體驗與電燒不同術式說明、**C**：提供學會認證之疾病衛教教材，讓病友更了解所接受的治療。未來將串連遠距照護系統，AI監測生理訊號，亦規劃專利申請並技轉廠商。創新整合之服務模式，引領全球心房顫動照護，創造醫病雙贏。

關鍵字：心房顫動、抗凝用藥預防中風、控制心律提升生活品質、共病與風險管理

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Abstract

Purpose:

Atrial fibrillation, the most common cardiac arrhythmia, has a prevalence of more than 1% and can increase a patient's risk of stroke by more than five times. The team has established the XR extended reality intelligent system - atrial fibrillation surgery process and anticoagulant pharmaceutical services. However, there is no complete whole-person, intelligent atrial fibrillation medical platform to help medical staff and patients, from atrial fibrillation Preventive treatment, anticoagulant medication guidance, inspection instructions, atrial fibrillation electrocautery procedure introduction, and a complete post-operative care platform.

Methods:

The short-term indicators were labor time saved, medication awareness questionnaire, medication compliance, and changes in drug-related problems (DRPs) when patients were referred to anticoagulant pharmacists. The system can send questionnaires to fill out by itself, or the medical staff can conduct phone tracking.

Main findings:

1. Establish system platform integration and client classification

The client can enter the system as a visitor or as a member. Visitors can choose one of the 4 simulated characters to experience the website, and the parameters required for personalized evaluation are built in to provide the system with intelligent calculations.

2. Why should I take anticoagulants? Know my stroke risk

The annual risk of stroke per 100 people is presented visually, and the risk of stroke per 100 people per year can be reduced after medication is also provided. Visual presentation allows users to understand the differences more clearly.

3. Smart calculation method for patients who use anticoagulants to receive invasive medical treatment

Provide a platform for joint care across specialties and occupations to reduce unnecessary bleeding that may occur due to insufficient drug withdrawal time, or stroke or embolism events caused by excessive drug withdrawal time.

4.

Conclusion:

This platform plans to cover a complete interactive atrial fibrillation care service, and each function can operate independently or in conjunction with each other. Customized products can be combined in any combination according to the needs of medical institutions or patients. In the future, it will be connected to a remote care system, AI will monitor physiological signals, and plans to apply for patents and transfer technology to manufacturers. The innovative and integrated service model leads the global care of atrial fibrillation and creates a win-win situation for both patients and doctors.

Keywords: Atrial fibrillation, Anticoagulation/avoid stroke, Better symptom control, Cardiovascular and comorbidity optimization