Increasing readmissions to hospital worsen mortality and decrease survival in Heart Failure patients - 15 year study from the United Kingdom from 2000-2014

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Declaration of Interest

- Others (Sponsorship to attend ESC by Servier Laboratories Limited)

Increased risk of death for heart failure patients with each hospital admission

Declaration of Interests and Disclosures

- Dr Rahul Potluri received sponsorship to attend ESC Conference 2016 from Servier Laboratories Limited

- **Hospital admissions because of heart failure are projected to rise by 50% over the next 25 years – largely as a result of the ageing population[1]**

- **In Europe, 3 months after discharge, a quarter of patients had been rehospitalised, and 13.5% had died[2]**

- **Heart failure places a huge burden on the NHS and accounts for:**

1) Total of 1 million inpatient bed days[2]

2) 2% of all NHS inpatient bed days[2]

3) 5% of all emergency medical admissions to hospital[2]

"**Does every hospital admission adversely affect the survival of heart failure patients and by how much**"

Key points about methods

- ACALM (Algorithm for Co-morbidities, Associations, Length of stay and Mortality) Study Unit, UK

- 457233 patients above the age of 18 years who had been admitted to multiple hospitals in the West Midlands, UK from 2000 to 2014

- 13416 patients diagnosed with heart failure and minimum 5 year follow-up

- For each patient the number of readmissions to hospital and death during the study period were recorded

- Statistical analyses performed to evaluate the risk of death with readmission

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Results

- **13416 HF patients; Mean age 71.9 years +/- 13.3 S.D; Male 50.5%; Female 49.5%**

    - **Readmissions**

        - 0-3 readmissions – 42 %

        - 4-7 readmissions – 28.9 %

        - 8-11 readmissions – 14.1 %

        - 12-15 readmissions - 6.9 %

        - > 15 readmissions – 8.2 %

    - **Crude death rate per 1000 patients**

        - 0-3 readmissions – 38 per 1000 patients

        - 4-7 readmissions – 196 per 1000 patients

        - 8-11 readmissions – 328 per 1000 patients

        - 12-15 readmissions - 406 per 1000 patients

        - > 15 readmissions – 453 per 1000 patients

Cox regression model showed that each readmission significantly increased risk of mortality by **1.021(95%C.I. 1.019-1.023;p<0.001).**
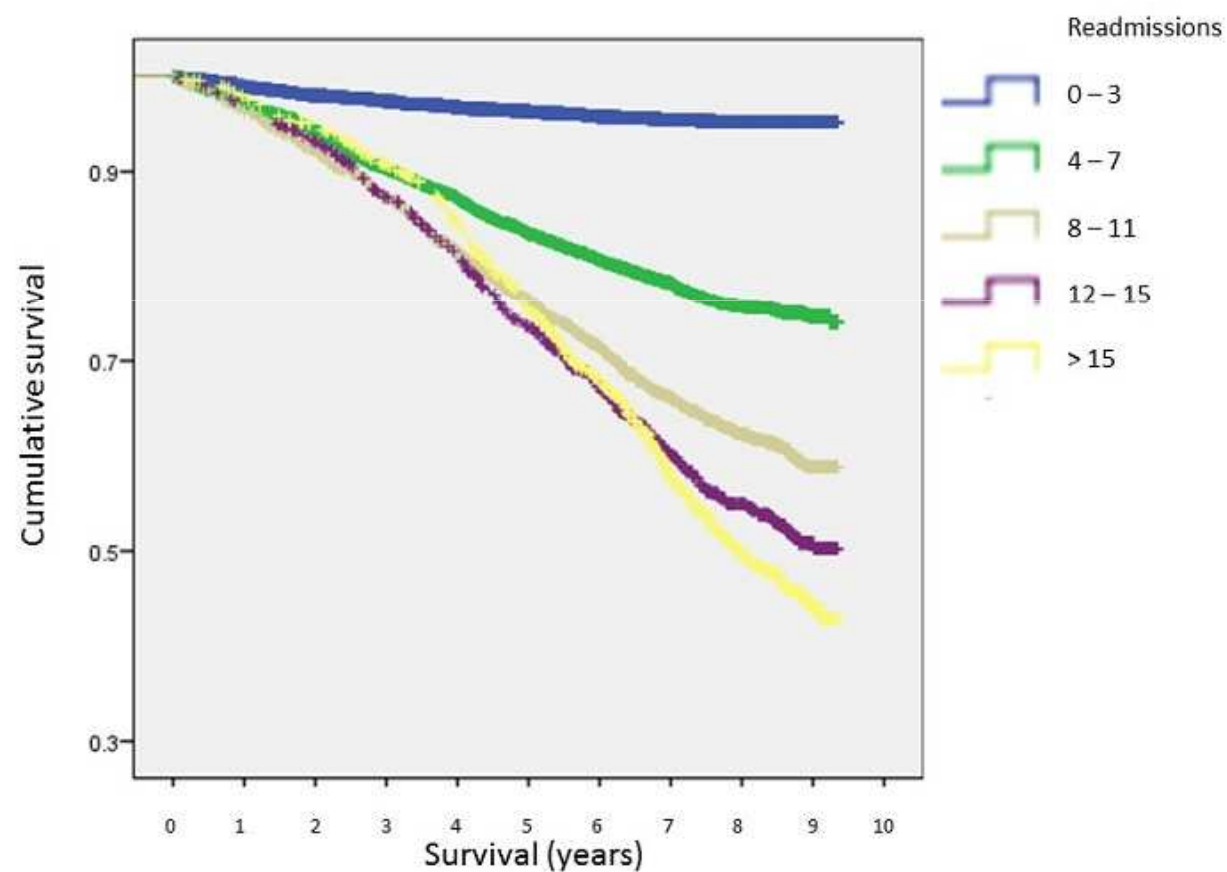
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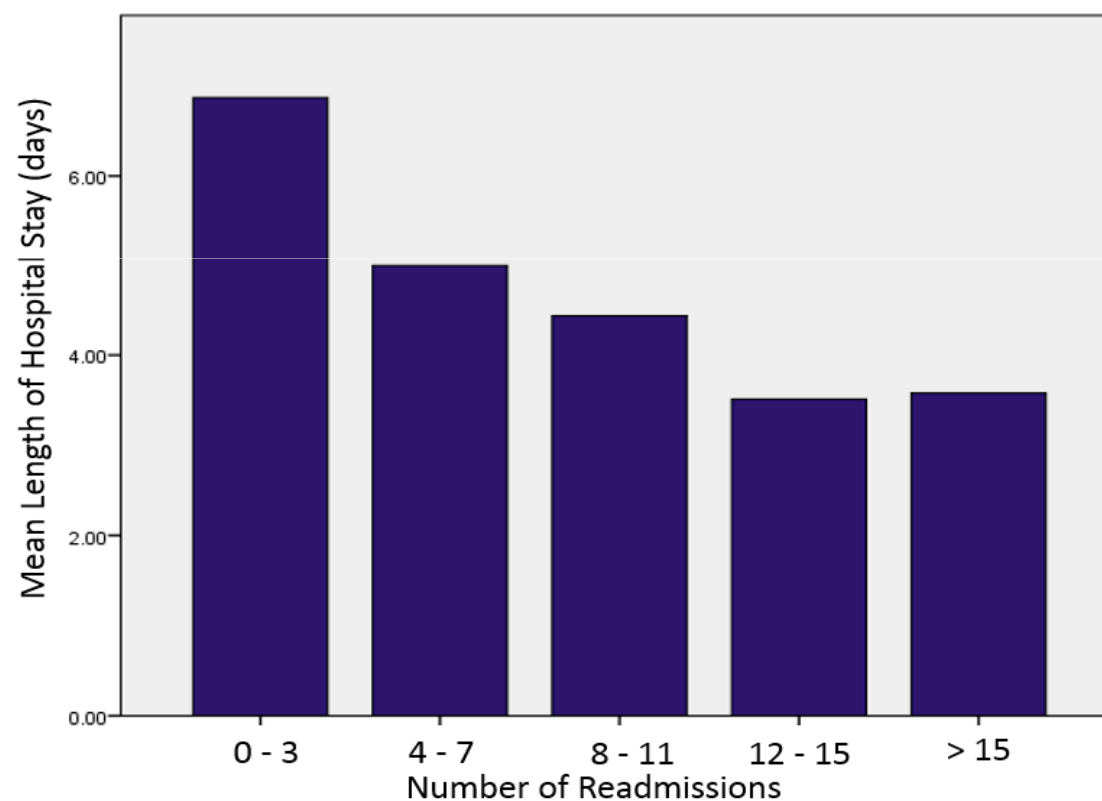**Crude death rate according to number of readmissions to hospital**
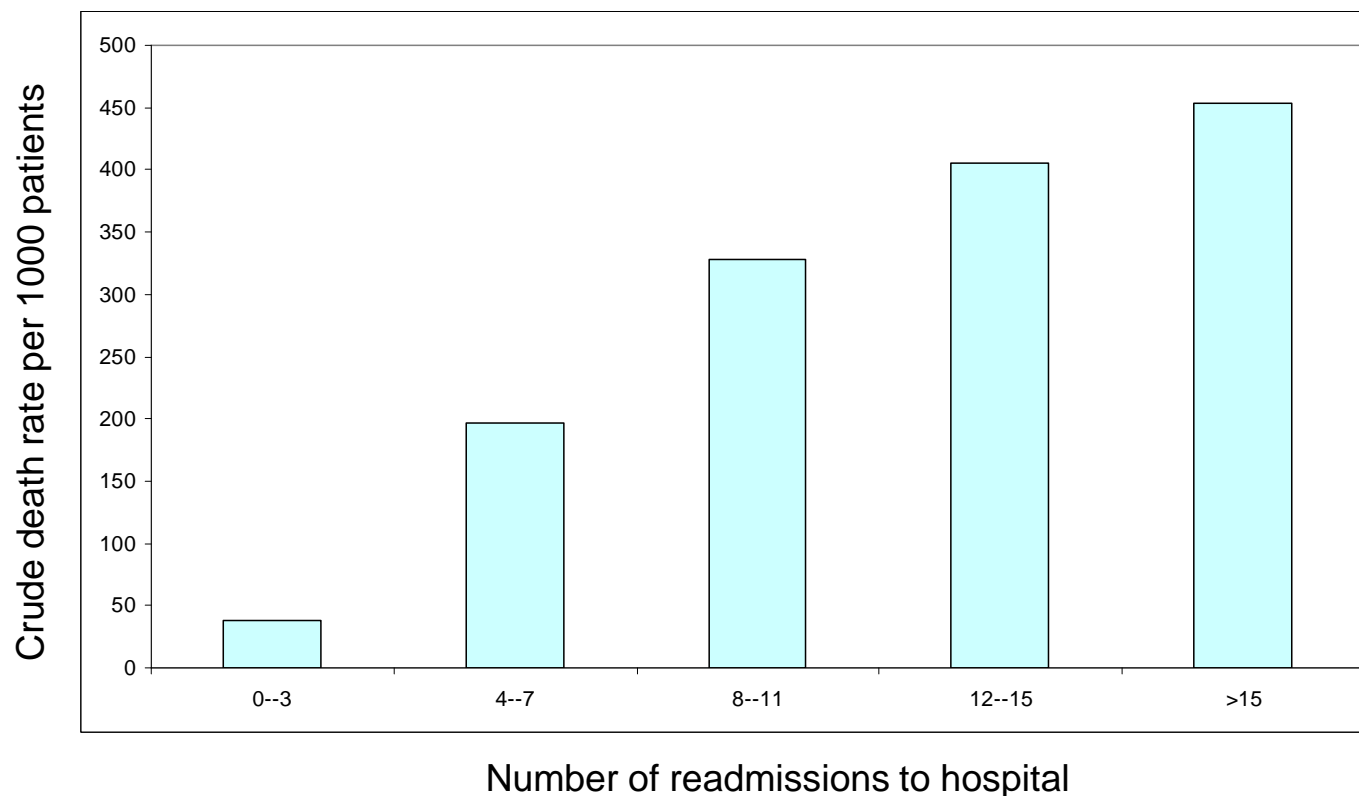
Results

Figure 1: Kaplan-Meier curve showing long-term survival in patients with Heart Failure dependent on number of readmissions to hospital

Results

Mean length of hospital stay according to number of readmissions

Conclusions

- **Readmissions to hospital lead to worse mortality and poorer survival**

- **Every admission to hospital increases risk of mortality by 2%**

- Each hospitalisation can result in compromised cardiac function, sub-optimal fluid status and patients often enter a vulnerable phase after discharge increasing their mortality risk 12-fold within the first month[3,4,5]

- The potential reasons for multiple readmissions should be explored

    - inappropriate early discharges

    - (lack of) specialist input

    - lack of and/delay in cardio-protective treatments

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Key messages

- **Reducing hospital admissions should be a priority in heart failure management, whether it is their 1st, 2nd or 15th hospital admission**

- **Each hospitalisation is an opportunity for a clinician to intervene, to optimise treatment and to reduce the risk of future hospitalisations**

- **Every effort should be made to optimise and start new treatments once a patient is stable and before a patient leaves hospital**

- **Effective and logical approach to ensure we do our best to prevent future readmissions may go some way to address the associated increase risk of death**

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