DANSK TIDSSKRIFT FOR AKUTMEDICIN

Comparison Between Frailty Phenotype and Deficit Accumulation – Association with post-discharge 90-day mortality

2019 Vol. 2
DEMC8 abstracts

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Background: Frailty is a clinical syndrome, which develops because of age-related decline, diseases, malnutrition and lifestyle. The syndrome leads to increased vulnerability, decline in physiological reserve and a reduced ability to resist stressors and thus, is associated with death, nursing home admission and prolonged hospital admission. There are two major overall perspectives on frailty; frailty as a phenotype and frailty as an accumulation of deficits. Following this, two different validated screening tools exists; Frieds Phenotype (FP) and Clinical Frailty Scale (CFS). However, the screening tools have not been tested in a Scandinavian cohort. The aim of this study was to investigate the association between frailty defined by FP or CFS, respectively and 90-day mortality in a Danish cohort.

Methods: The study was based on the CriSTAL-study (Criteria for Screening and Triaging to Appropriate aLternative care). The cohort was defined as Danish participants age > 65 years, acutely admitted to the ED and subsequent admission longer than 24 hours at Bispebjerg Hospital (BSP), Odense University Hospital (OUH) or Hospital of Southwest Jutland (SVS), respectively. A total of N=1030 were included, equally distributed from each hospital. Frailty was measured at admission to ED. Participants were classified as frail when scoring ≥ 3 by FP or ≥ 5 by CFS. The relative risk (RR) was calculated with a 95% confidence interval (CI) for both FP and CFS. The 90-day mortality were collected using the Danish Death Register.

Results: Fifty-four percent (54 %) of the participants were female and mean age was 78.2 years (range: 65-100). Two hundred twenty-one (n=221) and n=555 participants were categorized as frail by FP and CFS, respectively and n=128 died within 90 days. The analyses revealed significant associations between frailty and 90-day mortality; RR=2.67 (95% CI: 1.93-3.69), $p < 0.001$ and RR=4.12 (95% CI: 2.65-6.42), $p < 0.001$ with FP and CFS, respectively.

Conclusion: There is a significant association between frailty and 90-day mortality in the Danish cohort. However, CFS is a better predictor of 90-day mortality compared to FP.

Accepteret til publikation: 03-03-2019
Nygaard et al., Comparison Between Frailty Phenotype and Deficit Accumulation – Association with post-discharge 90-day mortality.
Dansk Tidsskrift for Akutmedicin, 2019, Vol. 2, s. 45