Heart. 2017 Aug;103(16):1264-1270.

Association between treatment for erectile dysfunction and death or cardiovascular outcomesafter myocardial infarction.

Abstract

OBJECTIVE:
Erectile dysfunction (ED) is associated with an increased risk of cardiovascular disease in healthy men. However, the association between treatment for ED and death or cardiovascular outcomes after a first myocardial infarction (MI) is unknown.

METHODS:
In a Swedish nationwide cohort study all men <80 years of age without prior MI, or cardiac revascularisation, hospitalised for MI during 2007-2013 were included. Treatment for ED, defined as dispensed phosphodiesterase-5 inhibitors or alprostadil, was related to risk of death, MI, cardiac revascularisation or heart failure.

RESULTS:
Forty-three thousand one hundred and forty-five men with mean age 64 (±10) years were included, of whom 7.1% had ED medication dispensed during a mean 3.3 years (141 739 person-years) of follow--up. Men with, compared with those without treatment for ED, had a 33% lower mortality (adjusted HR 0.67 (95%CI 0.55 to -0.81)), and 40% lower risk of hospitalization for heart failure (HR 0.60 (95% CI 0.44 to 0.82)). There was no association between treatment with alprostadil and mortality. The adjusted risk of death in men with 1, 2-5 and >5 dispensed prescriptions of phosphodiesterase-5 inhibitors was reduced by 34% (HR 0.66 (95% CI 0.38 to 1.15), 53% (HR 0.47 (95% CI 0.26 to 0.87) and 81% (HR 0.19 (95% CI 0.08 to 0.45), respectively, when compared with alprostadil treatment.

CONCLUSIONS:
Treatment for ED after a first MI was associated with a reduced mortality and heart failure hospitalisation. Only men treated with phosphodiesterase-5 inhibitors had a reduced risk, which appeared to be dose-dependent. **(Largest reduction in CVD mortality ever recorded by any treatment!)**

World J Diabetes. 2017 Mar 15;8(3):104-111

Statin, testosterone and phosphodiesterase 5-inhibitor treatments and age related mortality in diabetes.

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Author information

Abstract

AIM:
To determine how statins, testosterone (T) replacement therapy (TRT) and phosphodiesterase 5-inhibitors (PDE5I) influence age related mortality in diabetic men.

METHODS:
We studied 857 diabetic men screened for the BLAST study, stratifying them (mean follow-up = 3.8 years) into: (1) Normal T levels/untreated (total T > 12 nmol/L and free T > 0.25 nmol/L), Low T/untreated and Low T/treated; (2) PDE5I/untreated and PDE5I/treated; and (3) statin/untreated and statin/treated groups. The relationship between age and mortality, alone and with T/TRT, statin and PDE5I treatment was studied using logistic regression. Mortality probability and 95%CI were calculated from the above models for each individual.

RESULTS:
Age was associated with mortality (logistic regression, OR = 1.10, 95%CI: 1.08-1.13, $P < 0.001$). With all factors included, age (OR = 1.08, 95%CI: 1.06-1.11, $P < 0.001$), Low T/treated (OR = 0.38, 95%CI: 0.15-0.92, $P = 0.033$), PDE5I/treated (OR = 0.17, 95%CI: 0.053-0.56, $P = 0.004$) and statin/treated (OR = 0.59, 95%CI: 0.36-0.97, $P = 0.038$) were associated with lower mortality. Age related mortality was as described by Gompertz, $r^2 = 0.881$ when Ln (mortality) was plotted against age. The probability of mortality and 95%CI (from logistic regression) of individuals, treated/untreated with the drugs, alone and in combination was plotted against age. Overlap of 95%CI lines was evident with statins and TRT. No overlap was evident with PDE5I alone and with statins and TRT, this suggesting a change in the relationship between age and mortality. ***(Reduction in mortality for statins = 41%; testosterone treatment reduction = 62%; PDE5 treatment = 83% reduction. **Triple treatment had a greater than 95% reduction in overall mortality over a**

3.8 year time period for all age groups combined! Most amazing statistical analysis for anti-aging benefits ever published for treatment vs no treatment!!)

CONCLUSION:
We show that statins, PDE5I and TRT reduce mortality in diabetes. PDE5I, alone and with the other treatments significantly alter age related mortality in diabetic men.

Mortality over 3.8 years in diabetics with or without treatments with Statins, Testosterone, and PDE5 inhibitor drugs.

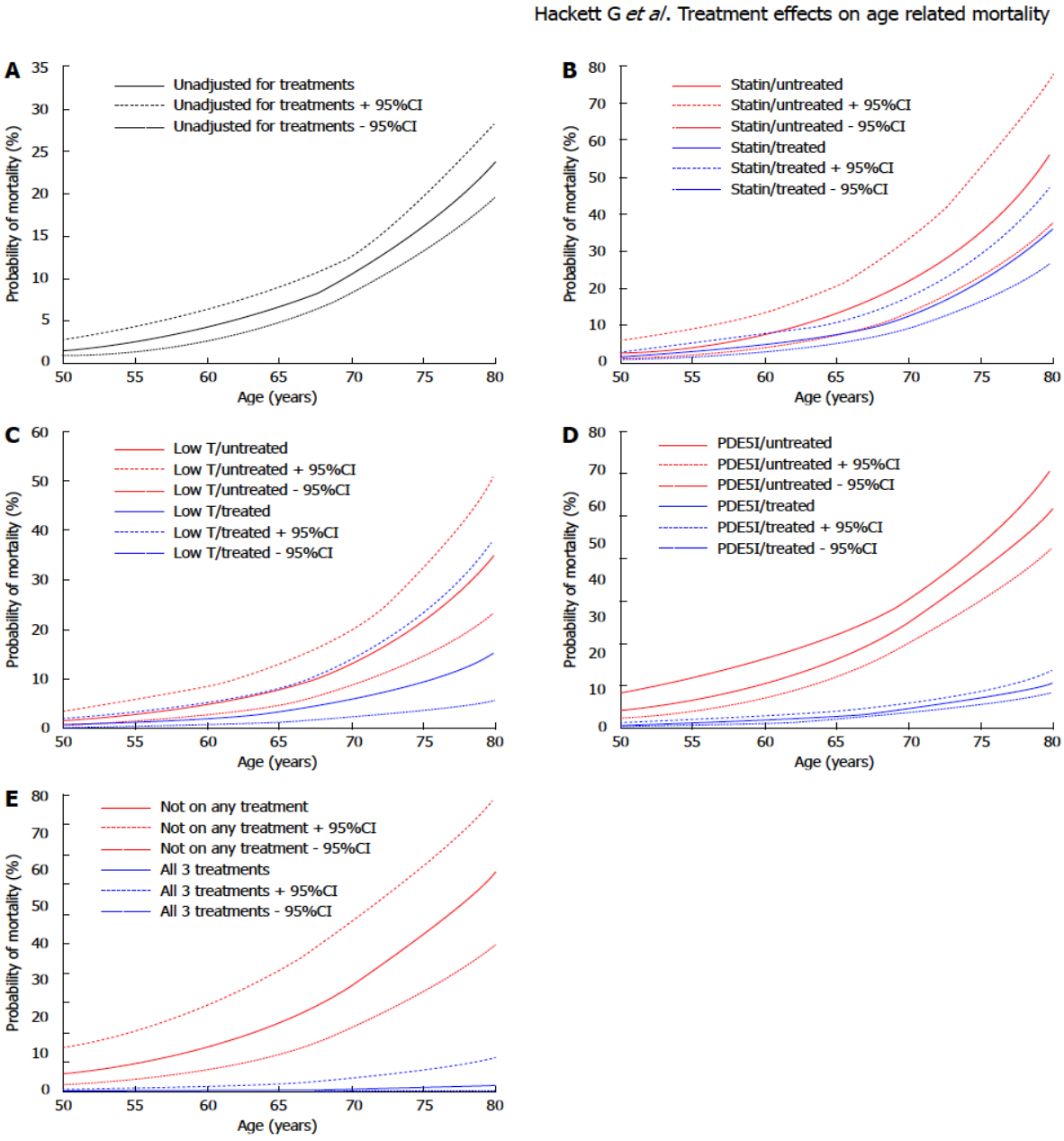

Figure 3 Association between probability of mortality and age. The estimated mortality probability and 95%CI from the fitted logistic regression (Table 2) were calculated from the logistic regression analyses seen in Table 2 and plotted against age at death or final visit in the following groups. Age was restricted to between 50-80 years due to reduced patient numbers in the treatment (Low T/treated and PDE5I/treated) groups (> 80 years) and the exponential pattern only being evident in the total group over the age of 50 years (Figure 1). A: Total group (from Model a in Table 2); B: Men stratified by statin treatment (from Model b in Table 2); C: Men stratified by testosterone treatment (from Model c in Table 2); D: Men stratified by PDE5I treatment (from Model d in Table 2); E: Men on all and none of the above treatments (from Model e in Table 2). PDE5I: Phosphodiesterase 5-inhibitors.