

The effect of hormone replacement therapy on the survival of UK women: a retrospective cohort study 1984-2017

Nurunnahar Akter¹, Elena Kulinskaya¹, Nicholas Steel¹, and Ilyas Bakbergenuly¹

¹University of East Anglia

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Abstract

Objective: To estimate the effect of oestrogen-only and combined hormone replacement therapy (HRT) on the hazards of overall and age-specific all-cause mortality in healthy women aged 46 to 65 at first prescription.

Design: Matched cohort study.

Setting: Electronic primary care records from The Health Improvement Network (THIN) database, UK (1984-2017).

Population: 105,199 HRT users (cases) and 224,643 non-users (controls) matched on age and general practice.

Methods: Weibull Double-Cox regression models adjusted for age at first treatment, birth cohort, type 2 diabetes, hypertension and hypertension treatment, coronary heart disease, oophorectomy/hysterectomy, body mass index, smoking, and deprivation status.

Main outcome measures: All-cause mortality.

Results: A total of 21,751 women died over an average of 13.5 years follow-up per participant, of whom 6,329 were users and 15,422 non-users. The adjusted hazard ratio (HR) of overall all-cause mortality in combined HRT users was 0.91 (95%CI 0.88-0.94), and in oestrogen-only users was 0.99 (0.93-1.07), compared to non-users. Age-specific adjusted HRs for participants aged 46-50, 51-55, 56-60, and 61-65 years at first treatment were 0.98 (0.92-1.04), 0.87 (0.82-0.92), 0.88 (0.82-0.93), and 0.92 (0.85-0.98), for combined HRT users compared to non-users, and 1.01 (0.84-1.21), 1.03 (0.89-1.18), 0.98 (0.86-1.12), and 0.93 (0.81-1.07) for oestrogen-only users, respectively.

Conclusions: Combined HRT was associated with a 9% lower risk of all-cause mortality and oestrogen-only formulation was not associated with any significant changes.

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Keywords: Hormone replacement therapy, menopause, mortality, primary care records, THIN.

Tweetable abstract: Oestrogen-only HRT is not associated with all-cause mortality and combined HRT reduces the risks.

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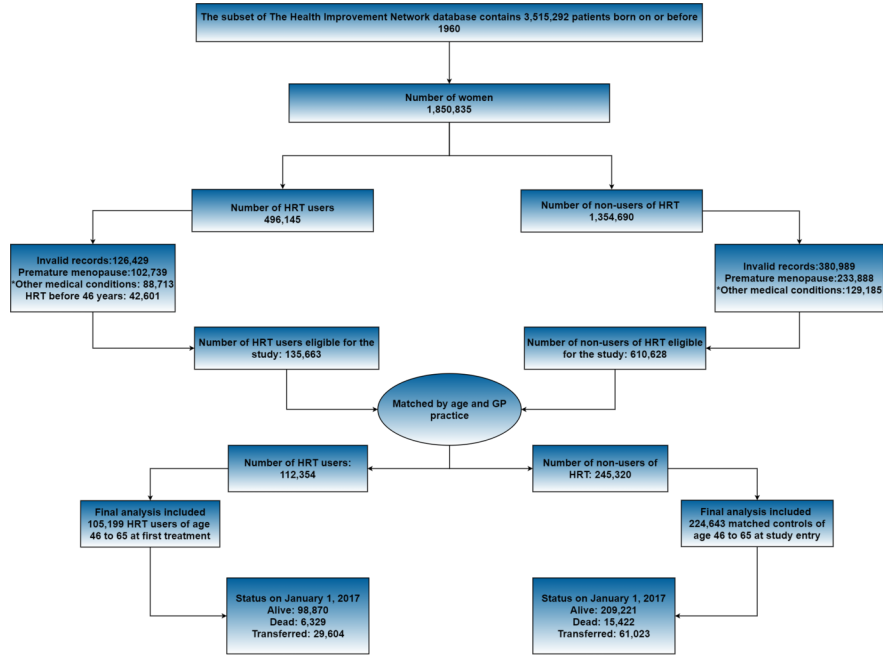
Nurunnahar Akter,^a Elena Kulinskaya,^a Nicholas Steel,^b Ilyas Bakbergenuly^a

^a School of Computing Sciences, University of East Anglia, Norwich, UK

^b Norwich Medical School, University of East Anglia, Norwich, UK

Correspondence: Nurunnahar Akter, School of Computing Sciences, University of East Anglia, Norwich Research Park, Norwich, NR4 7TJ, UK. Email: n.akter@uea.ac.uk

Running title: HRT and its impact on all-cause mortality.



Age cohort	Unadjusted HR (95% CI)	Adjusted HR (95% CI)
Overall	0.79 (0.76-0.81)	0.91 (0.88-0.94)
Combined HRT	0.87 (0.82-0.93)	0.99 (0.93-1.07)
Oestrogen-only		
46-50	1.02 (0.96-1.09)	0.98 (0.92 - 1.04)
Combined HRT		
Oestrogen-only	0.93 (0.80-1.08)	1.01 (0.84 - 1.21)
51-55	0.84 (0.79-0.89)	0.87 (0.82-0.92)
Combined HRT		
Oestrogen-only	0.83 (0.74-0.93)	1.03 (0.89-1.18)
56-60	0.81 (0.76-0.87)	0.88 (0.82-0.93)
Combined HRT		
Oestrogen-only	0.79 (0.71-0.89)	0.98 (0.86-1.12)
61-65	0.87 (0.81-0.94)	0.92 (0.85 - 0.98)
Combined HRT		
Oestrogen-only	0.74 (0.65-0.83)	0.93 (0.81 - 1.07)

