Use of the English urgent referral pathway for suspected cancer and mortality in patients with cancer: cohort study

Henrik Møller,[1 5] Carolynn Gildea,[2] David Meechan,[2] Greg Rubin,[3] Thomas Round,[4] Peter Vedsted[5]

EDITORIAL by Hamilton

[1]Cancer Epidemiology and Population Health, King's College London, London SE1 9RT, UK
[2]Public Health England, Knowledge & Intelligence Team (East Midlands), Sheffield, UK
[3]School of Medicine, Pharmacy and Health, University of Durham, Stockton on Tees, UK
[4]Division of Health and Social Care, King's College London
[5]Research Unit for General Practice, Centre for Cancer Diagnosis in Primary Care, Department of Public Health, Aarhus University, Aarhus, Denmark
Correspondence to: H Møller
henrik.moller@kcl.ac.uk

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STUDY QUESTION

Can use of the urgent referral pathway for patients with suspected cancer improve survival outcomes?

SUMMARY ANSWER

Patients from general practices that used urgent referral frequently had a better survival than those from general practices that used urgent referral less often.

WHAT IS KNOWN AND WHAT THIS PAPER ADDS

The urgent referral pathway for patients with suspected cancer has been available in England since the early 2000s, but its impact on cancer survival is not known. General practices that consistently have a low propensity for using urgent referrals could consider increasing use of this pathway.

Participants and setting

Patients with cancer (n=215 284) and general practices (n=8049) in England.

Design, size, and duration

Cohort analysis of time to death of individual patients with cancer, diagnosed or first treated in England in 2009 and followed up to 2013. Principal exposures were the standardised referral ratio, conversion rate, and detection rate of urgent referral, for each general practice. Each exposure was divided into three equal groups for the purposes of analysis. Covariates included patient's age, sex, type of cancer, and socioeconomic status.

Main results and the role of chance

During four years of follow-up, 91 620 deaths occurred, of which 51 606 (56%) occurred within the first year after diagnosis. The referral ratio and detection rate were associated with reduced mortality, based on three groups. The hazard ratio for the combination of high referral ratio and high detection rate was 0.96 (0.94 to 0.99; group 1). High hazard ratios (1.08; 1.07; 1.05) were seen for combinations that included a low referral ratio or detection rate (group 3). For groups 1-3 (with aggregated hazard ratios of 0.96, 1.00, and 1.07, respectively), corresponding cumulative risks of death at four years were 47%, 49%, and 52%. The 3% difference between groups 2 and 3 applies to almost 80 000 patients in group 3. This suggests that an additional 2400 patients with cancer in group 3 might have been alive at the four year time point if the use of urgent referral had been as high as in group 2. The large sample size precludes a spurious result due to chance.

Risk of death according to referral ratio and detection rate
Data are no of people/deaths, hazard ratio (95% confidence interval)

	Low detection rate	Intermediate detection rate	High detection rate
Low referral ratio	37 982 16 539 1.08 (1.06 to 1.11)	20 852 9193 1.07 (1.04 to 1.10)	12 939 5404 1.01 (0.97 to 1.04)
Intermediate referral ratio	20 582 8912 1.05 (1.02 to 1.08)	27 468 11 465 1.00	23 718 10 040 1.00 (0.97 to 1.02)
High referral ratio	13 240 5621 1.02 (0.99 to 1.05)	23 745 10 091 1.00 (0.97 to 1.03)	34 758 14 355 0.96 (0.94 to 0.99)

Group 3 Group 2 Group 1

Bias, confounding, and other reasons for caution

These results were consistent for different types of cancer (except breast cancer) and other stratifications of the dataset, and were not sensitive to adjustment for potential confounders and other details of the statistical model. But as in any observational study, there remains the possibility of bias from unknown confounding variables. In addition, because the effects on mortality were estimated by time to event, there was a contribution of lead time to the observed effect on mortality, which we were not able to estimate. Owing to the inherent variability of the measurements, the magnitude of the estimated mortality effect is likely to be under-estimated through non-differential misclassification.

Generalisability to other populations

Different countries have implemented urgent referral pathways in various ways, and the quantitative effects on mortality could differ between countries. The underlying mechanisms, whether directly through reduction in delays or indirectly through the variation in general practitioners' awareness of early signs of cancer, could be equally relevant in other populations.

Study funding/potential competing interests

The authors declare support from Cancer Research UK and the National Institute for Health Research for the submitted work. GR reports personal fees from medx GmbH, outside the submitted work, led the national audit of cancer diagnosis in primary care on behalf of the Royal College of General Practitioners (RCGP) between 2010 and 2012, and was the RCGP clinical lead for cancer between 2012 and March 2014; TR has been partly funded by a CRUK research grant for the national awareness and early diagnosis initiative since 2011, receives funding from the RCGP as clinical lead for an e-learning programme, has been a member of the National Cancer Research Institute's primary care clinical studies group since 2011, and has represented the RCGP on the National Institute for Health and Care Excellence's National Collaborating Centre for Cancer management board since 2012.

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Safety and efficacy of hysteroscopic sterilization compared with laparoscopic sterilization: an observational cohort study

Jialin Mao,[1] Samantha Pfeifer,[2] Peter Schlegel,[3] Art Sedrakyan[1]

[1]Department of Health Policy and Research, Weill Medical College of Cornell University, New York, NY 10065, USA
[2]Department of Obstetrics and Gynecology, Weill Medical College of Cornell University, New York-Presbyterian Hospital, New York, NY, USA
[3]Department of Urology, Weill Medical College of Cornell University, New York-Presbyterian Hospital, New York, NY, USA
Correspondence to: A Sedrakyan
ars2013@med.cornell.edu

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STUDY QUESTION

How do the safety and efficacy of hysteroscopic sterilization with "Essure" device compare with those of laparoscopic sterilization in a large, all inclusive, state cohort.

SUMMARY ANSWER

Patients undergoing hysteroscopic sterilization have a similar risk of unintended pregnancy but a more than 10-fold higher risk of undergoing reoperation compared with laparoscopic sterilization.

WHAT IS KNOWN AND WHAT THIS PAPER ADDS

Laparoscopic bilateral tubal ligation has been the primary method of female permanent birth control for decades, and the hysteroscopic microinsert device was developed as a less invasive alternative method. Our study found hysteroscopic sterilization was associated with a similar risk of unintended pregnancy as laparoscopic sterilization but had a much higher risk of reoperation, which persisted in different age groups and in patients with history of pelvic inflammatory disease.

Participants and setting

Adult women undergoing interval hysteroscopic and laparoscopic sterilizations between 2005 and 2013 in the outpatient interventional setting in New York State were identified.

Design, size, and duration

The population based cohort study included 8048 and 44 278 women who underwent hysteroscopic and laparoscopic sterilizations respectively. We examined 30 day safety events and unintended pregnancies and reoperations within one year after procedures.

Main results and the role of chance

The use of hysteroscopic procedures increased significantly during the study period, while the use of laparoscopic sterilization decreased. At one year after surgery, hysteroscopic sterilization was not associated with a higher risk of unintended pregnancy (odds ratio 0.84 (95% CI 0.63 to 1.12)) but was associated with a substantially increased risk of reoperation (odds ratio 10.16 (7.47 to 13.81)) compared with laparoscopic sterilization (table). In subgroup analyses of women of different age groups and with and without a history of pelvic inflammatory disease, hysteroscopic sterilization was consistently associated with higher risks of reoperation.

Bias, confounding, and other reasons for caution

Since patients are not likely to be hospitalized or go to an emergency room for pelvic pain or changes in menstrual cycle, we were unable to investigate the risk of developing pelvic pain or having prolonged menstrual cycle following procedures. Although we obtained histories of pelvic inflammatory disease, major abdominal surgery, and cesarean section from patients' previous medical records, some under-coding was possible, potentially leading to residual confounding.

Generalisability to other populations

In our study using all age, all payer data for the entire New York State we are able to provide evidence that is generalizable to common patient populations.

Study funding/potential competing interests

AS received funding from the US Food and Drug Administration for establishing the MDEpiNet Science and Infrastructure Center at Weill Cornell Medical College.

Adjusted 30 day safety and one year outcomes (odds ratios (95% CI)) after hysteroscopic and laparoscopic sterilization between 2005 and 2013 in New York State

	Hysteroscopic *v* laparoscopic sterilization	Ages (years)		History *v* no history of pelvic inflammatory disease
		<30 *v* ≥40	30-39 *v* ≥40	
30 day follow-up*				
Iatrogenic complications	0.35 (0.20 to 0.61)	1.61 (1.02 to 2.54)	1.17 (0.77 to 1.77)	1.52 (0.98 to 2.35)
Major medical complications	0.70 (0.28 to 1.78)	0.46 (0.17 to 1.23)	0.68 (0.32 to 1.46)	1.87 (0.84 to 4.17)
One year follow-up†				
Pregnancy	0.84 (0.63 to 1.12)	1.62 (1.13 to 2.33)	1.83 (1.32 to 2.53)	3.72 (3.00 to 4.59)
Ectopic pregnancy	0.34 (0.10 to 1.13)	3.49 (1.00 to 12.19)	3.51 (1.07 to 11.58)	2.89 (1.59 to 5.25)
Reoperation	10.16 (7.47 to 13.81)	1.06 (0.70 to 1.59)	1.17 (0.84 to 1.63)	1.67 (1.16 to 2.41)

*Patients who received the procedure during the last month of 2013 were excluded for 30 day follow-up.
†Patients who received the procedure in 2013 were excluded for one year follow-up.
Model accounted for hospital clustering and adjusted for patient age, race, insurance status, year of procedure, major comorbidities, and history of pelvic inflammatory disease, major abdominal surgeries, and cesarean section.

Usual blood pressure, peripheral arterial disease, and vascular risk: cohort study of 4.2 million adults

Connor A Emdin,[1] Simon G Anderson,[1] Thomas Callender,[1] Nathalie Conrad,[1] Gholamreza Salimi-Khorshidi,[1] Hamid Mohseni,[1] Mark Woodward,[2 3] Kazem Rahimi[1 4]

[1]The George Institute for Global Health, Oxford Martin School, University of Oxford, Oxford OX1 3DB, UK
[2]The George Institute for Global Health, University of Sydney, Sydney, Australia
[3]Department of Epidemiology, Johns Hopkins University, Baltimore, MD, USA
[4]Division of Cardiovascular Medicine, Radcliffe Department of Medicine, University of Oxford, Oxford, UK
Correspondence to: K Rahimi
kazem.rahimi@cardiov.ox.ac.uk

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- Research: Completeness and diagnostic validity of recording acute myocardial infarction events in primary care, hospital care, disease registry, and national mortality records (*BMJ* 2013;346:f2350)

STUDY QUESTION

What are the associations between usual blood pressure and risk of peripheral arterial disease in specific subgroups and the relation between peripheral arterial disease and 12 different vascular events?

SUMMARY ANSWER

A 20 mm Hg higher than usual systolic blood pressure was associated with a 63% higher risk of peripheral arterial disease. The study further shows that patients with peripheral arterial disease are at an increased risk of a range of different vascular events, including chronic kidney disease, ischaemic heart disease, heart failure, atrial fibrillation, and stroke, but not haemorrhagic stroke.

WHAT IS KNOWN AND WHAT THIS PAPER ADDS

Limited evidence suggests that raised blood pressure is associated with an increased risk of peripheral arterial disease and that the disease is associated with an increased risk of ischaemic heart disease and stroke. In this analysis of a large contemporary cohort raised blood pressure is a strong risk factor for peripheral arterial disease in a range of patient subgroups.

Participants and setting

People enrolled at a research standard general practice in the United Kingdom from 1990 to 2013. We considered people to be potentially eligible if they had no history of cardiovascular disease (with the exception of peripheral arterial disease) and had had a blood pressure measurement taken.

Adjusted* hazard ratios of 20 mm Hg higher than usual systolic blood pressure for incident peripheral arterial disease stratified by patient subgroup

Subgroup	No with peripheral arterial disease	Hazard ratio (95% CI)	P for interaction
Age (years):			
71-90	13 237	1.36 (1.31 to 1.41)	<0.001
61-70	13 544	1.54 (1.49 to 1.60)	
51-60	10 578	1.78 (1.72 to 1.86)	
41-50	5333	1.97 (1.86 to 2.10)	
30-40	1637	2.51 (2.22 to 2.84)	
Women	19 112	1.63 (1.59 to 1.68)	0.7259
Men	25 217	1.62 (1.58 to 1.66)	
Body mass index:			
0-25	19 366	1.72 (1.67 to 1.77)	<0.001
26-30	16 345	1.64 (1.58 to 1.69)	
31-35	6078	1.47 (1.38 to 1.56)	
>35	2539	1.35 (1.24 to 1.47)	
Smoking status:			
Current smoker	22 458	1.60 (1.55 to 1.64)	0.0603
Former smoker	7887	1.61 (1.54 to 1.69)	
Non-smoker	13 984	1.68 (1.63 to 1.74)	
Overall	44 329	1.63 (1.59 to 1.66)	

*Adjusted for age, body mass index, smoking status, sex, baseline diabetes, and baseline antihypertensive use, and lipid lowering drug use.

Design, size, and duration

Cohort study of 4.2 million people, with a median follow-up of 7.0 years.

Main results and the role of chance

During follow-up, 44 329 (1.05%) participants developed peripheral arterial disease and 485 760 (11.55%) developed other types of vascular disease. A 20 mm Hg higher than usual systolic blood pressure was associated with a 63% higher risk of peripheral arterial disease (hazard ratio 1.63, 95% confidence interval 1.59 to 1.66). No evidence of a nadir in the relation between usual systolic blood pressure and incident peripheral arterial disease was observed in the range 115-170 mm Hg. The strength of the association declined with increasing age and body mass index (P<0.001 for interaction) but was not modified by sex or smoking status. Peripheral arterial disease was associated with an increased risk of 11 different vascular events, including ischaemic heart disease (1.68, 1.58 to 1.79), heart failure (1.63, 1.52 to 1.75), aortic aneurysm (2.10, 1.79 to 2.45), and chronic kidney disease (1.31, 1.25 to 1.38), but not haemorrhagic stroke. The most common initial vascular event among those with peripheral arterial disease was chronic kidney disease (24.4% of initial events), followed by ischaemic heart disease (18.5% of initial events), heart failure (14.7%), and atrial fibrillation (13.2%).

Bias, confounding, and other reasons for caution

The risk of misclassification of events may be greater with electronic health records. Patients with hypertension and peripheral arterial disease may be more likely to be screened for cardiovascular disease than those without such disorders. However, in the analysis of cause specific mortality events (which are unlikely to be influenced by screening) we obtained similar estimates.

Generalisability to other populations

Although we examined a broad cohort of adults in the UK, the results may not be generalisable to other populations, such as those in developing countries.

Study funding/potential competing interests

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