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Numbers (%) of participants with age related macular degeneration in either eye by use of statins

	Age related macular degeneration*	
Statin use	Absent	Present
No (n=352)	276 (78.4)	76 (21.6)
Yes (n=27)	26 (96.3)	1 (3.7)†
All (n=379)	302 (79.7)	77 (20.3)

*Early or late age related macular degeneration in either eye as determined by the Wisconsin age related maculopathy grading system.
†P=0.02 (Fisher's exact test) for macular degeneration versus none.

a clinic at the Northern General Hospital, Sheffield, and 392 (95% of those interviewed) attended, where stereoscopic photos of both fundi were taken. Photographs were graded by one observer (NFH), who was unaware of the participants' drug history, against standard images using the Wisconsin age related maculopathy grading system.[3] We excluded 12 participants who had non-age related degenerative macular changes and one participant who was taking part in a trial of statins. The analyses that follow are therefore based on 379 participants.

Of the 379 subjects, 27 (7%) reported taking statins and 77 (20%) had some evidence of macular degeneration. Age related macular degeneration was more common among the participants who did not take statins (see table): 76/352 (22%) of participants who did not take statins showed signs of macular degeneration, compared with only 1/27 (4%) of participants taking statins (P = 0.02, Fisher's exact test). This is equivalent to an odds ratio for macular degeneration among participants who took statins of 0.14 (95% confidence interval 0.02 to 0.83) compared with those who did not.

A history of coronary artery bypass grafting or angioplasty was associated with macular degeneration. Eight of the 77 participants with macular degeneration (10%) had undergone coronary angioplasty or bypass grafting compared with 13 of the 302 participants (4%) without macular degeneration (P = 0.05, Fisher's exact test). Not surprisingly, people who had undergone coronary angioplasty or bypass grafting were more likely to have taken statins than those who had not (6/22 (27%) compared with 21/389 (5%) respectively). In a logistic regression model—after adjustment for age, sex, smoking, and history of coronary angioplasty or bypass grafting—the odds ratio for macular degeneration (early or late) among participants taking statins was 0.09 (0.01 to 0.73) compared with those who did not take the drug.

Comment

In this survey of men and women aged 66-75 those who took statins had an eleventh the risk of age related macular degeneration (after adjustment for coronary artery disease and smoking) compared with those not taking the drug. The confidence intervals are wide, however, giving an imprecise estimate of the reduced risk. Bias could lead to this association if people with macular degeneration and taking statins were less likely to participate, or people without macular degeneration and not taking statins were more likely to participate, but this seems unlikely.

We suggest three mechanisms that could link statin use with lower risk of macular degeneration. Firstly, statins might prevent the accumulation of basal linear deposit in Bruch's membrane, which occurs with higher concentrations of plasma cholesterol.[4] Secondly, antioxidant properties of statins might protect the outer retina from oxidative damage. Thirdly, simvastatin inhibits endothelial cell apoptosis and preserves ischaemic vasculature,[5] perhaps maintaining a competent vascular supply to the macula.

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Antenatal detection of HIV: national surveillance and unlinked anonymous survey

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In 1999 national targets were adopted for the universal offer and recommendation of a test for HIV during antenatal care throughout England.[1] This built on earlier initiatives aimed at enhancing maternal diagnosis of HIV infection and reducing perinatal transmission of HIV with appropriate interventions.[2] Substantial improvement in the proportion of maternal HIV infections diagnosed has been reported for much of London, and improvement has been observed more recently for the rest of England.[3] We used published estimates of rates of vertical transmission of HIV in the United Kingdom to assess whether the target of an 80% reduction in the proportion of vertically infected infants by December 2002 is likely to be achieved.[1]

Participants, methods, and results

We used results from the unlinked anonymous dried blood spot survey to estimate the number of births in

Estimated number of babies in England acquiring HIV infection from their mothers and number of these infections that were preventable (1997 and 1999)

	1997			1999		
	London	Rest of England	Total	London	Rest of England	Total
Births to women infected with HIV*	200	75	275	262	98	360
Maternal HIV infections diagnosed before pregnancy†	45	10	55	90	19	109
Maternal HIV infections diagnosed during pregnancy†	25	2	27	81	6	87
Percentage of maternal HIV infections diagnosed before delivery	35	16	30	65	26	54
Estimated number of babies who acquired HIV infection from their mothers (95% CI)‡	36 (27 to 47)	17 (13 to 21)	53 (41 to 68)	28 (19 to 42)	20 (15 to 25)	48 (34 to 67)
Estimated minimum number of infected babies achievable§	4	2	6	6	2	8

*Data obtained from the unlinked anonymous programme and adjusted for areas not covered by the survey.
†Confidential reports of HIV positive pregnancies made through the Royal College of Obstetricians and Gynaecologists and confirmed by April 2001.
‡Assuming vertical transmission rates of 2.2% (95% CI 0% to 7.8%) for infections diagnosed before or during pregnancy[4] and 26.5% (21.1% to 31.1%) for infections not diagnosed before delivery.[5] As these rates are estimates for the United Kingdom and the risk of HIV infection is heterogeneous, the number of infected babies will be an overestimate or an underestimate when expressed by subregion.
§Assuming all infections are diagnosed before delivery and a vertical transmission rate of 2.2%. We assumed, on the basis of observed data for 1997 and 1998 from the national study of HIV in pregnancy, that 9% of women whose infection is diagnosed during pregnancy would opt to terminate the pregnancy.

England to women infected with HIV.[3] Combining these data with confidential reports of pregnancies in women diagnosed as being infected with HIV made through the Royal College of Obstetricians and Gynaecologists to the national study of HIV in pregnancy and childhood allowed us to estimate the proportion of maternal infections diagnosed before delivery. We used data from 1997 to reflect the baseline situation before the implementation of national antenatal HIV testing and data from 1999 to investigate recent improvements in rates of maternal diagnosis.

To estimate the number of babies acquiring HIV infection from their mothers we assumed a vertical transmission rate of 2.2% for women whose infection was diagnosed before delivery and 26.5% for women whose infection was not diagnosed.[4 5] To calculate the minimum number of infected babies achievable we assumed diagnosis of all maternal infections before delivery and a vertical transmission rate of 2.2%. The vertical transmission rate for women with diagnosed infection was based on British surveillance data for 1997, when 62% of women with diagnosed infection had their babies delivered by caesarean section and 97% accepted some antiretroviral treatment.[4]

In 1997 infection was diagnosed and reported for 82 of the estimated 275 women infected with HIV who gave birth in England. We estimate that 53 babies were likely to have been infected (three born to women with a diagnosis and 50 to women without a diagnosis), and that 47 (89%) of these infections were preventable (minimum number achievable = 6) (table).

The recent improvement in the proportion of maternal HIV infections diagnosed before delivery in England (particularly in London) reflects an increase in the number of women with a previous diagnosis becoming pregnant as well as an improvement in rates of antenatal diagnosis. Although there were more births to infected women in 1999 than in 1997, the increasing proportion of maternal infections diagnosed before delivery is likely to have led to fewer infants acquiring infection (table). Although nearly three quarters of pregnant women infected with HIV live in London, rates of diagnosis must improve throughout the country if the target for reduction in paediatric infection is to be reached. Even if all infected women in London had had a diagnosis in 1999 there would still have been 26 babies born with HIV infection in England as a whole (20 + 6), a reduction of 51% from the 1997 baseline of 53 (table).

Comment

Achieving the national target of an 80% reduction in paediatric HIV infections depends on improving rates of diagnosis outside London as well as sustaining and further improving them in London. Most pregnant women infected with HIV live in London, and improvements in rates of antenatal diagnosis in this region have already had an impact in reducing transmission of HIV from mother to child. Recent data for the first half of 2000 indicate that rates of antenatal detection outside London have increased substantially as routine antenatal testing has been implemented,[3] and this should result in further reductions in the proportion of infected infants.

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