examinations or when the examination was performed (data not shown). Twenty nine of the children with myeloid leukaemia and 27 of the controls had been exposed to ultrasound prenatally (odds ratio 1.0; 0.42 to 2.40) (table). The risk of myeloid leukemia was not influenced by the number of ultrasound examinations (table). A slightly higher, but not significant, risk was seen for those examined during the second trimester (odds ratio 1.42; 0.88 to 2.29). Adjustments for potential confounding, such as maternal age, high birth weight, and twin pregnancies, did not alter the results (data not shown).

Risk of childhood leukaemia in relation to ultrasound examinations and number of examinations: results of Swedish population based nationwide case-control study

	Myeloid leukaemia			Lymphatic leukaemia		
	No of cases	No of controls	Odds ratio* (95% CI)	No of cases	No of controls	Odds ratio* (95% CI)
All pregnancies						
Not exposed to ultrasound	334	318	1.00	42	39	1.00
Exposed	200	214	0.85 (0.62 to 1.16)	29	27	1.00 (0.42 to 2.40)
Missing information†	44	46	NA	3	8	NA
No of ultrasound examinations						
None	334	318	1.00	42	39	1.00
1 or 2	161	159	0.93 (0.67 to 1.23)	22	20	1.00 (0.40 to 2.50)
⩾3	39	55	0.64 (0.40 to 1.04)	7	7	1.00 (0.30 to 3.33)
Missing information†	44	46	NA	3	8	NA
Odds ratio (linear trend)‡	NA	NA	0.95 (0.85 to 1.06)	NA	NA	1.01 (0.74 to 1.38)

NA=Not applicable. *Calculated by means of conditional logistic regression. †Missing information on exposure. ‡Calculated by means of conditional logistic regression, assuming linear effect for number of ultrasound examinations.

Comment

We could not detect any association between exposure to ultrasound during pregnancy and lymphatic or myeloid leukaemia, and the results of the study are therefore reassuring. The strengths of the study are its size, the exclusion of children with Down's syndrome, and the use of prospectively assembled exposure data. Ultrasound examination was gradually introduced in Sweden during the study period, and the proportion of exposed fetuses (36%) is therefore appropriate; any possible underestimation of exposure should be similar in both cases and controls.

We conclude that single or repeated intrauterine exposure to ultrasound, early or late in the pregnancy, does not influence the risk of subsequent development of lymphatic or myeloid childhood leukaemia.

Contributors: EN coordinated the study and assembled the data. SC and AE were responsible for initiating the study and the original study design. RB was responsible for the statisitical work. PH contributed to the interpretation of the data. The paper was written jointly by all authors, with EN as lead author. AE is guarantor for the paper.

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Drug points

Lichenoid drug eruption with proton pump inhibitors

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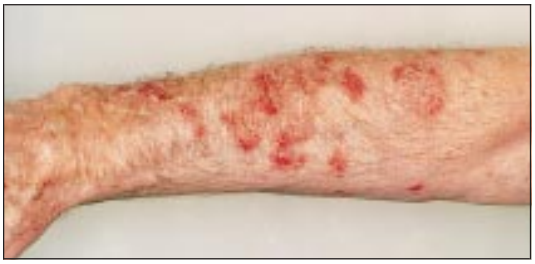
We report a patient who developed a recurrent lichenoid eruption after treatment with omeprazole, lansoprazole, and pantoprazole.

An 81 year old man presented with a three month history of a widespread pruritic rash. He suffered from oesophagitis and had been taking omeprazole 20 mg/day for nine months. Examination revealed an annular scaly erythematous rash on the dorsal aspects of his forearms and, to a lesser extent, on his trunk and thighs (figure). A clinical diagnosis of adverse drug eruption was made and omeprazole stopped. The rash cleared in a month, but his dyspepsia recurred and he was prescribed lansoprazole 30 mg/day. Three weeks later, the eruption recurred, and a skin biopsy showed features of a lichenoid drug reaction. Lansoprazole was stopped, and the rash resolved. He suffered a second recurrence several months later after inadvertent challenge with pantoprazole 40 mg daily.

The most common adverse effects of omeprazole are diarrhoea, headache, and rashes, of which urticaria and toxic erythema are the most common.[1 2] Premarketing



Lichenoid eruption in reaction to proton pump inhibitors

trials on lansoprazole showed a similar adverse reaction profile to omeprazole.[3] The Committee on Safety of Medicines has received one report of lichen planus associated with omeprazole and two reports associated with lansoprazole but no reports associated with pantoprazole (personal communication). The identical lichenoid eruption induced by all three proton pump inhibitors suggests a "class effect, possibly" related to their similar substituted benzimidazole structure.

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