Editorial Committee

J R T Colley  (Editor)
J M Elwood
P C Elwood

R M Acheson  (Associate Editors)
R E Midwinter

P R Gentle
Geoffrey Rose
Estlin Waters

Editor British Medical Journal

Jocelyn Chamberlain
Ian Leck

Beryl Flitton (Technical Editor)

It is the policy of this Journal to publish original work in the field of epidemiology and community health which relates to a total defined population and which shall be numerically rated. The field of interest includes studies of the distribution and behaviour of disease in human populations; the definition of the agents responsible for the patterns observed; the modifying effect of social or environmental conditions on disease evolution; and the assessment of the health and efficiency of people exposed to various external circumstances. Linked with these subjects is the design of measures intended to control or prevent disease and the field assessment of their value in public health practice. Epidemiology and community health also encompasses the objective study of the organisation and functioning of medical services with particular emphasis on the measurement of their efficiency. Papers are accepted on their scientific originality and general interest, and ethical considerations will be taken into account.

Communications Papers should be prepared in accordance with "Uniform requirements for manuscripts submitted to biomedical journals" Br Med J 1982: 284: 1766-70. Two copies should be submitted to the Editor, Journal of Epidemiology and Community Health, Department of Epidemiology and Community Medicine, University of Bristol, Canynge Hall, Whiteladies Road, Bristol BS8 2PR. Papers will be considered in accordance with the terms of the uniform requirements. Papers will be acknowledged if a stamped addressed envelope or an international postal coupon is enclosed. Papers will not be returned whether accepted or not, so copies should be retained by authors.

Summaries, Illustrations, Tables, Acknowledgments. References should be in accordance with the uniform requirements for manuscripts. References will not be checked by the editorial office as responsibility for the accuracy and completeness of references lies with the author.

Proofs Contributors will receive one proof, and should read it carefully for printers' errors, and check the tables, figures, legends, and any numerical, mathematical, or other scientific expressions. Alterations to the original text should be kept to a minimum.

Reprints Twenty-five reprints will be supplied free of charge. A limited number of additional reprints may be ordered from the Publishing Manager when the proofs are returned.

Copyright © 1986 by the Journal of Epidemiology and Community Health. This publication is copyright under the Berne Convention and the International Copyright Convention. All rights reserved. Apart from any relaxations permitted under national copyright laws, no part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means without the prior permission of the copyright owners. Permission is not, however, required to copy abstracts of papers or of articles on condition that a full reference to the source is shown. Multiple copying of the contents of the publication without permission is always illegal.

Notice to Advertisers Application for advertisement space and for rates should be addressed to the Advertisement Manager, Journal of Epidemiology and Community Health, BMA House, Tavistock Square, London WC1H 9JR.

Notice to Subscribers The Journal of Epidemiology and Community Health is published quarterly. The annual subscription rates are £41-00 inland and £47-00 overseas (including the USA). Orders should be sent to The Subscription Manager, Journal of Epidemiology and Community Health, BMA House, Tavistock Square, London WC1H 9JR. Orders can also be placed with any leading subscription agent or bookseller. (For the convenience of readers in the USA, subscription orders with or without payment may also be sent to British Medical Journal, Box 560B, Kennebunkport, Maine 04046. All enquiries, however, must be addressed to the Publisher in London.) All enquiries regarding air mail rates and single copies already published should be addressed to the Publisher in London.
Contents

No 1 March 1986

The demand for health: theory and applications ADAM WAGSTAFF page 1
Comparison of chiropractic and hospital outpatient management of low back pain: a feasibility study REPORT OF A WORKING GROUP page 12
The Port Pirie cohort study: maternal blood lead and pregnancy outcome ANTHONY J MCMICHAEL, GRAHAM V VIMPANI, EVELYN F ROBERTSON, PETER A BAGHURST, AND PETER D CLARK page 18
Testicular cancer mortality in England and Wales 1971-80: variations by occupation M E MCDOWALL AND R BALARAJAN page 26
Parental occupations and cancer: a review of the literature S E ARUNDELL AND L M KINNIER-WILSON page 30
Diet and coronary heart disease in England and Wales during and after the second world war D J P BARKER AND C OSMOND page 37
Effect of a lactation nurse on the success of breast-feeding: a randomised controlled trial D E JONES AND ROBERT R WEST page 45
Social and family factors in childhood hospital admission D M FERGUSSON, L J HORWOOD, AND F T SHANNON page 50
Illness, disability, and drugs among 25 to 75 year olds living at home HEDLEY PEACH AND JOHN R H CHARLTON page 59
Breast screening clinic versus health education session as outlets for BSE education C FLAHERTY, J PHILIP, W G HARRIS, AND C A F JOSLIN page 67
Psychiatric morbidity after screening for breast cancer CHRISTINE DEAN, M MAUREEN ROBERTS, KATE FRENCH, AND SUSAN ROBINSON page 71
Increase in hospital admissions for torsion of testis M NELMS AND D COGGON page 76
Prevalence of goitre and hypothyroidism in Southern Tanzania: effect of iodised oil on thyroid hormone deficiency W WÄCHTER, M MVUNGI, A KÖNIG, C R PICKARDT, AND P C SCRIBA page 86
Cerebral palsy—is it a seasonal disorder? LALIT KANT, SAROJINI DEWAN, AND B K JAIN page 92
Society for Social Medicine page 94
Letter to the Editor page 70
Corrections page 96

No 2 June 1986

Mortality ratios, life expectancy, and causes of death in patients with Turner’s syndrome W H PRICE, J F CLAYTON, S COLLYER, R DE MEY, AND J WILSON page 97
Lifestyle changes in long term survivors of acute myocardial infarction R R WEST AND DA EVANS page 103
Phlegm production and lung function among cigarette smokers changing tar groups during the 1970s HEDLEY PEACH, D M HAYWARD, D R ELLARD, R W MORRIS, AND D SHAH page 110
Community hospitals in Oxfordshire: their effect on the use of specialist inpatient services JAMES E BAKER, MICHAEL GOLDACRE, AND J A MUIR GRAY page 117
The natural history of asthma in childhood H R ANDERSON, J M BLAND, S PATEL AND C PECKHAM page 121
Distribution of episodes of mental illness in general practice: results from the Second National Morbidity Survey N C SMEETON page 130
 Provision of services for incomitant elderly people at home CATHERINE W MCGROther, CHRISTOPHER M CASTLEDEN, HILARY DUFFIN AND MICHAEL CLARKE page 134
 The elderly at home: indices of disability CAROL JAGGER, MICHAEL CLARKE, AND RICHARD ANDREW DAVIES page 139
 An evaluation of screening policies for cervical cancer in England and Wales using a computer simulation model D M PARKIN AND S M MOSS page 143
 Family building in parents with Down’s syndrome children A R BOON page 154
 Services for stroke patients one year after stroke JULIA LEIGH-SMITH, DERICK T WADE, AND RICHARD LANGTON-CHEWER page 161
 Use of the Nottingham Health Profile with patients following a stroke SHAH EBRAHIM, DAVID BARER, AND FIONA NOURI page 166
 Repetition of accidents in young children C JANE EMINSON, HARJINDER JONES, AND MICHAE L GOLDACRE page 170
 Factors influencing participation in health surveys. Results from the prospective study “Men born in Malmö, Sweden, 1914” LARS JANZON, BERTIL STEEN, BERTIL HANSON, SVEN-OLOF ISAACSON, AND SVEN-ERIC LINDELL page 174
 Further evidence of a fall in blood lead in Wales PETER C ELWOOD AND COLIN TOOTHILL page 178
 Methylmercury exposure and mortality in southern Japan HIDEHIKO TAMASHIRO, MIKI0 ARAKAKI, MAKATO FUTATSUKA, AND EUN SUL LEE page 181
 Blood pressures higher in the home than in the clinic in rural Kenya N R POULTER, J D LURY, AND A V THOMPSON page 186
 Blood pressure and salt in Malawi: an urban rural study D SIMMONS, G BARbour, J CONGLETON, J LEVY, P MEACHER, H SAUL, AND T SOWERBY page 188
No 3 September 1986

Perinatal mortality standards: construction and use of a health care performance indicator E G KNOX, R LANCASHIRE, AND E H ARMSTRONG page 193
Congenital cytomegalovirus infection: predisposing maternal factors PHILIP M PREECE, PAT TOOKEY, ANTHONY ADES, AND CATHERINE S PECKHAM page 205
Seasonal variations in cryptorchidism MARK B JACKSON AND ANTHONY J SWERDLOW page 210
Month of birth of men with malignant germ cell tumours of the testis L BERNEST, CLAIR CHILVERS, T MURRELLS, AND M C PIKE page 214
Recent trends in mortality due to testicular cancer in Ireland: a comparison with England and Wales JOHN A THORNHILL, RONAN M CONROY, DANIEL G KELLY, ANTHONY WALSH, JAMES J FENNELLY, AND JOHN M FITZPATRICK page 218
Maternal smoking and low birthweight: implications for antenatal care ROGER J SIMPSON AND N G ARMAND SMITH page 223
Why did postperinatal mortality rates fall in the 1970s? R SUNDERLAND, A GARDNER, AND R R GORDON page 228
Research in epidemiology and community health in the medical curriculum: students' opinions of the Nottingham experience J M ELWOOD, J C G PEARSON, R J MADELEY, R F A LOGAN, M W BEAVER, P A GILLIES, J LITTLE, AND A LANGHAM page 232
Epidemiology of rotavirus gastroenteritis Y SENTURIA page 236
Insulin-dependent diabetes in a Scottish region: incidence and urban/rural differences N R WAUGH page 240
Seasonal variations in cryptorchidism MARK B JACKSON AND ANTHONY J SWERDLOW page 210
Month of birth of men with malignant germ cell tumours of the testis L BERNEST, CLAIR CHILVERS, T MURRELLS, AND M C PIKE page 214
Recent trends in mortality due to testicular cancer in Ireland: a comparison with England and Wales JOHN A THORNHILL, RONAN M CONROY, DANIEL G KELLY, ANTHONY WALSH, JAMES J FENNELLY, AND JOHN M FITZPATRICK page 218
Maternal smoking and low birthweight: implications for antenatal care ROGER J SIMPSON AND N G ARMAND SMITH page 223
Why did postperinatal mortality rates fall in the 1970s? R SUNDERLAND, A GARDNER, AND R R GORDON page 228
Research in epidemiology and community health in the medical curriculum: students' opinions of the Nottingham experience J M ELWOOD, J C G PEARSON, R J MADELEY, R F A LOGAN, M W BEAVER, P A GILLIES, J LITTLE, AND A LANGHAM page 232
Epidemiology of rotavirus gastroenteritis Y SENTURIA page 236
Insulin-dependent diabetes in a Scottish region: incidence and urban/rural differences N R WAUGH page 240
Trends in blood lead levels in Christchurch (NZ) and environs 1978–85 DAPHNE HINTON, PATRICIA A COOPE, WILLIAM A MALPRESS AND EDWARD D JANUS page 244
The Tromsø heart study: alcoholic beverages and coronary risk factors TORMOD BRENN page 249
Mortality from alcohol related disease in Italy CARLO LA VECCHIA, ADRIANO DECARLI, GUERINO MEZZANOTTE, AND CESARE CISLAGHI page 257
Who responds to postal questionnaires? ANN CARTWRIGHT page 267
Letters to the Editor page 274

No 4 December 1986

Health and disease: two philosophical perspectives LENNART NORDENFELT page 281
Is there seasonal variation in the prescribing of antidepressants in the community? KEREN SKEGG, D C SKEGG, AND B W MCDONALD page 285
Early oral contraceptive use and breast cancer: theoretical effects of latency KLIM MCPHERSON, P A COOPER, AND M P VESSEY page 289
Perinatal outcomes and related factors: social class differences within and between geographical areas DIANA ELBOURNE, COLIN PRITCHARD, AND MARJORIE DAUNCEY page 301
Breast feeding and smoking hygiene: major influences on cotinine in urine of smokers' infants ALISTAIR WOODWARD, NICK GRGURINOVICH AND PHILIP RYAN page 309
A case-control study of acute appendicitis and diet in children M NELSON, J MORRIS, D J P BARKER AND S SIMMONDS page 316
Distribution of body weight and height: comparison of estimates based on self-reported and observed measures WAYNE J MILLAR page 319
Association of serum lipids with coffee, tea, and egg consumption in free-living subjects MANFRED S GREEN AND ELIEZER JUCHA page 324
Heart rate, employment status, and prevalent ischaemic heart disease confound relation between cereal fibre and blood pressure MICHAEL J LICHTENSTEIN, MICHAEL L BURR, ANN M FEHILY, AND JOHN W G YARNELL page 330
A randomised controlled trial to investigate the effect of a high fibre diet on blood pressure and plasma fibrinogen ANN M FEHILY, MICHAEL L BURR, BARBARA K BUTLAND, AND ROBERT D EASTHAM page 334
Edinburgh breast education campaign on breast cancer and breast self-examination: was it worth while? M MAUREEN ROBERTS, SUSAN E ROBINSON, KATE FRENCH, ANN PROUDFOOT, HELEN TALBOT, AND ROBERT A ELTON page 338
Motor neurone disease in the Lothian Region of Scotland, 1961–81 SUSAN M HOLLOWAY AND J DOUGLAS MITCHELL page 344
Epidemiology in Antarctica HILARY KING page 351
Changes in annual tuberculosis notification rates between 1978/79 and 1983 for the population of Indian subcontinent ethnic origin resident in England A J NUNN, JANET H DARBYSHIRE, WALLACE FOX, DEBORAH A JOHNSON, AND V H SPRINGETT page 357
What's in a name? Accuracy of using surnames and forenames in ascribing Asian ethnic identity in English populations ANGUS NICOLL, KAREN BASSETT, AND STANLEY J ULUASZEK page 364
Index to volume 40 page 369
Prevalence of goitre and hypothyroidism in Southern Tanzania: effect of iodised oil on thyroid hormone deficiency*

W WÄCHTER1, M MVUNGI,2 A KÖNIG,3 C R PICKARDT,3 AND P C SCRIBA4
From 6296 Mengerskirchen;1 Lutherar Hospital,2 Ilembula via Iringa, Tanzania; Medizinische Klinik Innenstadt der Universität München,3 Ziemssenstrasse 1, D—8000 München 2, West Germany; Klinik für Innere Medizin der Universität,4 Ratzeburger Allee 160, D—2400 Lübeck 1, West Germany

SUMMARY  In the Southern Highlands of Tanzania the prevalence of endemic goitre due to iodine deficiency is in the range of 90% and hypothyroidism in the range of 50% of schoolchildren. The present study confirms these data and documents the beneficial effect of Lipiodol injections on thyroid function in children around the age of puberty compared with untreated children from the same villages. On the other hand, a decrease in the prevalence of goitre could not be shown. A beneficial effect is shown for infants of mothers who received iodine during pregnancy. It seems that this form of supplementation is sufficient for breast fed children for more than three years, even when a second child has been delivered in the meantime. In contrast, older siblings of these babies may become hypothyroid when breast feeding is stopped. The determination of thyroid autoantibodies in iodine treated and untreated children and in young adults showed no increasing prevalence of positive findings thus excluding iodine induced chronic thyroiditis at least in the young target population.

The southern highlands of Tanzania are known to be an area with a high prevalence of endemic goitre1,2 and hypothyroidism3 due to iodine deficiency. Therefore, in 1979, privately initiated iodine supplementation was undertaken regionally in order to motivate the local medical establishment into continuing this programme.

A reinvestigation was performed in 1982 in order to
1 reestablish the persistence of a high prevalence of goitre in untreated schoolchildren;
2 make a comparison between treated and untreated children from the same villages, which differed only with respect to their age;
3 study the beneficial effect of iodised oil, given to pregnant women, by investigation of mothers and infants three years later; and
4 exclude harmful thyroiditis3,4 induced by iodised oil by investigation of thyroid autoantibodies in untreated and treated children and adults.

The data are presented to draw the attention of the local authorities to the iodine deficiency problems.

*Supported by Berliner Missionswerk, Division for World Mission, Berlin, West Germany

Methods

Thyroid enlargement was determined by palpation and classified according to the WHO recommendations.5,6 Thyroid palpations were performed by three different investigators.

Thyroid hormone levels, thyroxine binding globulin (TBG) and serum TSH levels were determined by radioimmunoassay, as described elsewhere.7–9 Thyroid antibodies were determined using commercial test systems (Fa Welcome, Burgwedel, FRG). Blood spot TSH from filter paper was determined as previously described.8 Blood samples were drawn from a cubital vein. Samples were centrifuged, and serum was stored at 4°C for up to 10 days and thereafter frozen at −20°C until determinations were performed. Blood samples for blood spot TSH analysis were taken from 30 infants. Filter papers were thoroughly dried and stored in the same way as serum samples.

Normal ranges for healthy controls from Munich were: thyroxine (T4) 4·5–10·0 μg/dl; thyroxine binding globulin (TBG) 1·6–2·8 mg/dl; T4/TBG ratio 1·8–5·7 (arbitrary units); triiodothyronine (T3) 80–160 ng/dl; thyrotropin (TSH) 0–2·1 mU/l.
The TSH radioimmunoassay was performed using a low labelled $^{125}$I-TSH tracer and a prolonged incubation time. TSH standards were diluted in human serum from volunteers during T3 suppression ($100 \mu g/d$). The lower limit of detection is $0.4 \text{mU}/l$; the normal basal level in the Bavarian goitre region is below $2-1 \text{mU}/l$; thus serum levels in the range $2-2-5.0 \text{mU}/l$ were assumed to be borderline, whereas serum levels over $5 \text{mU}/l$ are clearly indicative of hypothyroidism.

In euthyroid children more than 10 days old and in adults, blood spot TSH (lower limit of detection $12 \text{mU}/l$) is undetectable. In a previous study$^2$ we showed that blood spot TSH levels below $12 \text{mU}/l$ do not necessarily exclude moderate or mild hypothyroidism, because of a loss of TSH activity on the filter paper, presumably due to environmental humidity. In this study the transport time was less than two weeks and the filter papers were kept in a cool box during the time of sampling.

**Study population**

**GROUP I**
Five hundred and sixty children from seven different villages who had never received iodine prophylaxis$^3$ were investigated for thyroid enlargement and thyroid function.

**GROUP III**
For comparison, 124 children from three different villages who had received iodine supplementation ($1 \text{ml} \text{Lipiodol}^R$, Byck-Gulden Federal Republic Germany, im, containing 480 mg iodine bound to ethyl-ester of oleum papaveris) three years previously, were reinvestigated.

**GROUP II**
This special group was compared with 134 children of younger age, from the same three villages who had not yet received iodine.

The age was requested from the children but this information cannot be relied on, because the date of birth is not documented in the rural areas of Tanzania. It is obviously doubtful whether children attending primary school are more than 16 years of age in groups I and III. Therefore, those who gave an age of 17–47 years ($n=30$) were not eliminated.

In addition, 25 young women, who had received iodised oil during pregnancy in 1979, their babies born in 1979/80 ($n=25$), and five younger babies born in 1981/82 were investigated. TSH levels of the children were determined by the filter paper method.

Thyroid autoantibodies were investigated in 138 untreated children and adults as well as in 174 treated children and adults to exclude a possible increase in immunological reactions after a high dose of lipid bound iodine.

Wilcoxon Rank test was used for statistical analysis.

**Results**

**CHILDREN WITHOUT IODINE PROPHYLAXIS (GROUP I)**
A total of 560 schoolchildren, 6–19 years of age, were investigated before iodine supplementation.

![Figure 1](https://example.com/fig1.jpg)

*Fig 1* Distribution of age (A), TSH levels (B), $T_4/TBG$ ratio (C), and $T_3$ levels (D) in 560 schoolchildren from different villages in Uwanje. As indicated by the different numbers for the various parameters, data are not complete for technical reasons.
The distribution of age, TSH levels, $T_4/TBG$ ratio, and $T_3$ levels is given in figure 1.

The $T_4/TBG$ ratio was normal in only 67% (table I) and normal TSH levels were found in only 31% of these children; 41% had moderately elevated TSH levels in the range 2.2-5.0 mU/l, whereas 28% of the TSH levels were in the range 5.1-745 mU/l, indicating frank hypothyroidism. There was a significant correlation between the $T_4/TBG$ ratios and basal TSH levels ($p<0.01$). No correlation was shown for $T_3$ and TSH levels.

The overall prevalence of goitre was 90% in 512 children of group I. For the difference in numbers of children in figs 1 and 2 see fig 1; 75% of these children (fig 2) had goitre grades I and II. Goitre grade III increased significantly with age ($p<0.01$).

**Comparison of Children with and without Previous Iodine Prophylaxis**

The data for 124 children from three different villages, who had received iodised oil injections three years previously (group III), were compared with those of 134 children without iodine supplementation (group II) from the same villages.

According to the selection, the children forming group III were significantly older than those in group II (fig 3), because only the younger ones, not yet attending school in 1979, had not received iodised oil injections. Thyroid function in group III was significantly different in all parameters tested ($p<0.01$, table 2).

The most striking difference was found for the TSH levels. Mean TSH level was only slightly elevated in the iodine treated group but clearly elevated with a wide range of variation in the untreated group. Out of 134 untreated children, 64 (48%) had basal TSH levels of 5 mU/l and more, whereas in only 8 out of 123 (6.5%) treated children was TSH above 5 mU/l.

As shown in table 1 (middle and right part) 45.5% of children without previous iodine supplementation in group II exhibited thyroxine deficiency. In group II...
Prevalence of goitre and hypothyroidism: effect of iodised oil on thyroid hormone deficiency

only 15.6% were euthyroid in terms of both normal T₄/TBG ratio and normal TSH level. In contrast, only 4% of children who had received iodised oil 3 years previously, showed a decreased T₄/TBG ratio. In this group, 50.8% were euthyroid in terms of normal T₄/TBG ratio and TSH levels.

Comparison of the different grades of goitre did not reveal significant differences between groups II and III.

Reinvestigation of mothers receiving iodine during pregnancy and investigation of their children
In one village, 25 mothers who had received iodine in 1979 during pregnancy and 25 children born in 1979/80 as well as five children born in 1981/82 were reinvestigated. All mothers had serum TSH levels below 2.1 mU/l. The TSH levels as measured by the filter paper method were elevated in 7 out of 25 older babies (28%) (fig. 4) but in none of the younger babies. All of the latter were breast fed.

Thyroid autoantibodies in untreated and iodine treated children and adults
As shown in table 3, microsomal antibodies were undetectable in 311 out of 312 treated and untreated subjects. One out of 156 treated children from group I had a low positive titre. Thyroglobulin antibodies were borderline positive in 2 out of 126 untreated and in another 2 out of 154 iodine treated children.

Discussion
The investigation of schoolchildren before iodine supplementation again demonstrates the high prevalence of endemic goitre in this area. The high prevalence of overt and borderline hypothyroidism among the schoolchildren without supplementation was confirmed. Despite the fact that up to now no concise information on the mental and somatic handicaps of these children is available, there is no doubt that the degree of biochemically confirmed hypothyroidism alone indicates the need for an
Table 3 Thyroid autoantibodies in untreated and in Lipiodol treated children and adults

<table>
<thead>
<tr>
<th></th>
<th>Mab</th>
<th>Tgab</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Pos</td>
</tr>
<tr>
<td>Untreated children</td>
<td>128</td>
<td>128</td>
</tr>
<tr>
<td>Untreated adults with goitre</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Treated children</td>
<td>155</td>
<td>155</td>
</tr>
<tr>
<td>Treated women</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Totals</td>
<td>312</td>
<td>311</td>
</tr>
</tbody>
</table>

effective iodine supplementation programme in this area.

The comparison of untreated and iodine treated children from the same villages shows the beneficial long-term effect on thyroid function of 1 ml Lipiodol in terms of lower TSH levels and higher T4/TBG ratios in the treated group. It could be shown that 96% of the treated children had normal T4/TBG ratios. However, investigation of the more sensitive parameter of thyroid hormone deficiency, ie, TSH determination, shows that only 50% of these children were fully euthyroid when compared with basal TSH levels of normal controls from the mild iodine deficiency area in Southern Germany. This finding is to be expected because urinary iodine excretion decreases exponentially with a half-life of 5-6 months after injection of iodised oil.

Moreover comparison reveals that this supplementation did not result in a sufficient decrease of thyroid enlargement. However, it cannot be excluded that the goitres of these children had exhibited a transient decrease during optimal iodine effect as described in other regions.

For these two reasons, the interval between iodine injections should probably be shorter than three years, at least for children in puberty and adolescence when euthyroid function, in terms of both normal T4/TBG ratio and normal serum TSH level and a nearly normal thyroid volume, is the aim of such a supplementation programme.

In a previous study, we showed that blood spot TSH levels below 12 mU/l do not necessarily exclude moderate or mild hypothyroidism, because TSH activity is partly lost on the filter paper, but frank hypothyroidism may not be overlooked by using this kind of TSH measurement. Therefore, we judge that filter paper TSH from a finger prick of the 30 babies gives a rough insight into the protective effect of 1 ml iodised oil for mothers and newborns, when investigated three years after the mothers had received iodised oil during pregnancy. All of the women had normal TSH levels three years after the injection, whether they had given birth to a second child in the meantime or not. Among the older babies of these women, 28% were found to be hypothyroid after stopping breast feeding, whereas none of the second children had elevated TSH levels. All of the latter were still breastfed. Thus, maternal milk seems to be a sufficient source of iodine for these children since it had been shown that there is a linear relation between iodine content in the milk and maternal iodine excretion, at least in borderline iodine deficiency. This finding indicates that iodine prophylaxis should be given to children as soon as breastfeeding is stopped.

In our study, there is no suspicion that intramuscular injection of iodised oil increases the rate of chronic thyroiditis in children and young adults, because thyroid antibodies did not increase compared with the untreated study population. This is in contrast to the observation of Boukis et al, who found an increased rate of thyroglobulin and microsomal antibodies, up to 42-8%, three and six months after oil injection in their study population 19-60 years of age. Our finding is also in contrast to the observation in regions with an effective prophylaxis programme with iodised salt. Although we cannot exclude a transient increase in thyroid antibodies in our sample, we can conclude from our data that this rough form of iodine prophylaxis does not induce harmful chronic thyroiditis in the young population, which is the main target for prophylaxis programmes.

We thank the Berliner Mission for supporting Dr M Mvungi and for donating the iodised oil (Lipiodol). We also thank Dr Kadete and his staff, of the Ilembula Lutheran Hospital who took part in the reinvestigation programme; the technical staff of the endocrine laboratories of the Medizinische Klinik Innenastadt der Universität München for determination of the thyroid function parameters; and Mrs R Thomeier for her thorough preparation of the manuscript.

References


