Research

A national register for surveillance of inherited disorders: β thalassaemia in the United Kingdom

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Objective To demonstrate the value of a national register for surveillance of services for an inherited disorder.
Methods Data from the United Kingdom Thalassaemia Register and the United Kingdom Register of Prenatal Diagnosis for Haemoglobin Disorders were combined in a database; these registers include all fetuses known to have been diagnosed with β thalassaemia major, β thalassaemia intermedia, or haemoglobin E/β thalassaemia in the United Kingdom. Data were extracted to show outcomes (selective abortion or live birth) of all fetuses and the status of those born with a disorder (alive, dead, successful bone marrow transplant, or lost to follow-up) by parents' region of residence and ethnicity.
Findings At the end of 1999 the register included 1074 patients, 807 of whom were alive and residing in the United Kingdom. A successful bone marrow transplant has been performed for 117 out of 581 (20%) patients born since 1975. Residents of Pakistani origin are now the main group at risk in the United Kingdom, replacing residents of Cypriot origin. This has led to a marked shift in the need for services from the south-east of England to the Midlands and the north of England. Despite the acceptability of prenatal diagnosis, the proportion of affected births remains 50% higher than would be expected, reflecting a widespread failure to deliver timely screening and counselling to carriers. Even though effective treatment is available the annual number of deaths is rising, indicating that better tolerated treatments are needed.
Conclusion A national diagnosis register is a powerful instrument for monitoring the treatment and prevention of inherited disorders and for highlighting correctable shortcomings. In view of the increasing possibilities for genetic screening there is a strong case for central funding for such databases within modern health services.

Keywords beta-thalassemia/epidemiology; Hemoglobinopathies/epidemiology; Prenatal diagnosis/utilization; Registries; Evaluation studies; United Kingdom (*source: MeSH*).

Mots clés Thalassémie bêta/épidémiologie; Hémoglobinopathie/épidémiologie; Diagnostic prénatal/utilisation; Registre; Etude évaluation; Royaume-Uni (*source: INSERM*).

Palabras clave Beta-talasemia/epidemiología; Hemoglobinopatías/epidemiología; Diagnóstico prenatal/utilización; Sistema de registros; Estudios de evaluación; Reino Unido (*fuente: BIREME*).

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Voir page 1012 le résumé en français. En la página 1012 figura un resumen en español.

Introduction

Developments in human genetic science associated with the sequencing of the human genome will greatly increase the possibilities for genetic screening and for preventing and treating genetically deter-

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mined disorders. There is growing interest in a new discipline of community genetics, which is concerned with equitably delivering the benefits of genetic knowledge to communities and bringing together the experiences of those in primary health care, public health, genetics, and health informatics (*1*). For example, there is a need for standardized methods for describing the epidemiology of genetic disorders, service audits, and the assessment of their consequences for health.

Haemoglobin disorders are common, can be treated effectively, and can be prevented by screening the population and offering genetic counselling and the option of prenatal diagnosis. These services have been available for over 20 years and they offer the only model of large-scale genetic population screening. The methods developed for service audit have general relevance to population screening (*2*) and should be incorporated into health services.

Over 5% of the world's population are healthy carriers of a haemoglobin disorder, and couples in which both partners are carriers have a 1 in 4 risk in every pregnancy of having a child with a serious inherited anaemia. Worldwide about 60 000 children with a major thalassaemia and 250 000 with a sickle cell disorder are born annually, giving a rate of more than 2.4 affected children per 1000 births (*3*). Though originally endemic to the tropics and subtropics, these anaemias are now found worldwide as a result of migration (*4*).

Carriers can be detected using routine blood tests, and results are, in general, as precise as DNA diagnosis (*5*). When screening is performed as recommended, over 96% of couples carrying a haemoglobin disorder can be detected and informed of their risk and options before they have children. Community-based "thalassaemia control programmes" — combining the best possible patient care with prevention through community information, carrier screening, genetic counselling, and an offer of prenatal diagnosis (*6*) — have proved highly acceptable in a wide range of cultural settings and have led to a marked fall in the number of children born with this disorder (*7–10*). The objective of screening is to offer couples who are at risk information and choice.

In the early 1980s, a WHO working group noted that a national register of patients is a powerful tool for obtaining epidemiological information on genetics and for assessing treatment (survival) and prevention (the birth rate of affected children); from time to time patient data has been aggregated in several countries for surveillance purposes. Health services often support the use of registers of congenital anomalies (*11, 12*), and these occasionally include patients with thalassaemia (*13*). The only countries where a thalassaemia register (or a register for any other inherited disorder) is explicitly maintained for surveillance purposes are the Islamic Republic of Iran (*14*) and Oman (*15*).

Thalassaemia in the United Kingdom

Thalassaemia in the United Kingdom offers a suitable model for demonstrating the surveillance value of a national diagnosis register because treatment and prevention have been available for many years, while the small number of people affected makes it possible to run a national register from a single research centre.

Great Britain is a multi-ethnic society, with 7% of the population and 11% of births in ethnic groups at risk for haemoglobin disorders. It is estimated that more than 0.37 per 1000 fetuses have a major haemoglobin disorder, 80% being sickle cell disorders and 20% being thalassaemias (*16*). Thalassaemia first appeared as a significant problem in the United Kingdom between 1957 and 1967, when 10% of the population of Cyprus (57 000 people) migrated to London in search of employment and refuge from civil strife (*17*). Of these migrants, 17% were carriers of β thalassaemia, giving a prevalence of affected births of 7 per 1000 births (*10*). Migration from the Indian subcontinent, south-east Asia, and the Middle East subsequently brought thalassaemia to other major conurbations and groups at risk are now scattered throughout the country. Until now the treatment and prevention of thalassaemia have been provided by motivated professionals, but the national plan for the health service, published in 2000, includes a commitment to provide a national "linked policy of antenatal and neonatal screening" for haemoglobin disorders by 2004 (*18*).

Most patients with homozygous β thalassaemia depend on transfusions to control their disease. At first, affected children were transfused only enough to maintain a mean haemoglobin level of 8 g/dl or less ("low-transfused"), but since 1966 their mean haemoglobin has been maintained in the normal range. Death from transfusional iron overload can only be averted by intensive iron chelation therapy: regular administration of desferrioxamine was initiated in 1967, first by daily intramuscular injections and subsequently by nightly subcutaneous infusion using a portable syringe driver (*19*). The oral iron chelating agent deferiprone, which has been in clinical trials since the late 1980s, is used increasingly (*20*). Patients who adhere fully to this demanding treatment have an open-ended prognosis (*21*) but need management of multiple complications as they grow older (*22*). Since 1982 bone marrow transplantation has been available for patients for whom there is a fully compatible related donor (*23*). Screening for carriers and offering counselling for haemoglobin disorders has been considered a standard part of antenatal care since the early 1980s, and uptake of prenatal diagnosis by informed couples at risk for thalassaemia is high (*24*).

An informal patient register was initiated in 1967 to estimate the prevalence of thalassaemia among residents in London who were of Cypriot origin (*17*) and to document the natural history of β thalassaemia (*19*). A formal patient register with a dedicated curator (*MK*) has been funded by the

Wellcome Trust since 1997, and a laboratory-based national register of prenatal diagnoses of haemoglobin disorders was established in 1994 (*25*). In practice these two registers constitute a single "diagnosis register" and include all pregnancies in which the fetus is known to be affected. The registers have recently been used for: a national audit of antenatal screening for haemoglobin disorders (*25*); case-finding for the National Confidential Enquiry into Genetic Counselling, which is assessing the quality of service delivery (*26*); and a national study of patients' survival (*27*). In this paper we show how the register can be used to evaluate services for the treatment and prevention of an inherited disorder and we describe the history of thalassaemia in the United Kingdom.

Methods

The United Kingdom Thalassaemia Register includes all patients resident in the United Kingdom who have β thalassaemia major, β thalassaemia intermedia, or haemoglobin E/β thalassaemia. All contacts are made with doctors treating the patients and all identifying data on patients and doctors are confidential. The register is approved by the ethics committee of the University College London Hospitals and the Royal Free and University College Medical School and by the United Kingdom Thalassaemia Society. The database is registered under the 1984 Data Protection Act, and procedures are being updated to comply with the 1999 Act. Participating doctors are asked to explain the register to each family and elicit any concerns: no objections have been reported.

Information on patients and their doctors has been obtained from circulars issued through the British Paediatric Association and the British Society for Haematology; enquiries to the Office for National Statistics for patients who have died or emigrated; the United Kingdom register of prenatal diagnosis for haemoglobin disorders; the United Kingdom Register of Bone Marrow Transplantation (*28*); and from the United Kingdom Forum on Haemoglobin Disorders (a national, multiprofessional association).

Doctors are requested to update information on the register at approximately 18-month intervals. Personal contact is the key to success. *MK* visits treatment centres and helps extract the data, uses the telephone rather than letters, and is personally known to most of the doctors and their secretaries. Some doctors with only a few patients have certainly been missed, but omissions eventually come to light because most doctors with patients with thalassaemia seek advice from an expert at some stage and all experts collaborate with the register. Register data are therefore considered to be at least 95% complete up to the end of 1994. Data for patients born since 1995 is incomplete because of the time lag in diagnosing and registering new patients. The register is not only a mechanism for collecting data and facilitating research; it is also a network that is in contact with every doctor treating patients with thalassaemia. It aims to support the standardized delivery of high-quality care by disseminating information, such as treatment protocols for doctors and booklets for patients. This two-way flow of information contributes to the register's general acceptability.

The following data were extracted for all patients: treating doctor or doctors, patient's date of birth and country of birth, ethnic origin, diagnosis, present status (alive, deceased, left the country, lost to follow-up), district and region of residence, whether bone marrow transplantation has been attempted, and outcome. Similar data for affected fetuses aborted after prenatal diagnosis was obtained from the United Kingdom register of prenatal diagnosis for haemoglobin disorders, which was over 97% complete up to the end of 1999 (*25*).

Data from both the United Kingdom Thalassaemia Register and the United Kingdom Register of Prenatal Diagnosis for Haemoglobin Disorders were combined in a database. Data were extracted onto an Excel spreadsheet and analysed by parents' region of residence and ethnicity. The analysis was by exact country of origin of the parents or their ancestors, and district health authority of residence. Categories were then aggregated to give proportionate prominence to major ethnic and geographical groupings.

Results

Table 1 shows the characteristics of the 1074 patients who were registered at the end of 1999. Altogether, 80% had β thalassaemia major, 14% had β thalassaemia intermedia, and 6% had haemoglobin E/β thalassaemia.

The need for and quality of patient care

Such an assessment requires consideration of all 1033 patients presently resident or who died in the United Kingdom. The 77 patients who were born outside the United Kingdom are included, and the 41 who moved abroad permanently are excluded (Table 1) from the analysis.

Table 2 shows births and deaths by 5-year intervals. Births reached a maximum of nearly 28 per year in 1975–79. Since prenatal diagnosis was introduced in the late 1970s births have fallen to approximately 23 per year. There has been a steady increase in annual deaths to approximately 7 per year and mortality has been 0.9–1.1% per year since the 1950s (Table 2). At the end of 1999 there were 764 patients known to be alive and resident in the United Kingdom. The 43 patients lost to follow-up were thought to be alive and resident in the United Kingdom because the Office of National Statistics had no record of their death or departure from the country. The number of living patients is rising by approximately 14 per year because the number of annual births exceeds deaths, and two to three affected children enter the country with their parents annually.

Table 1. **Status of patients on the United Kingdom Thalassaemia Register, end of 1999**

Place of birth	Resident in the United Kingdom				Resident elsewhere		
	Alive	Deceased	Lost to follow-up	*n*	Alive	Lost to follow-up	*n*
United Kingdom	707	210	39	956	14	10	24
Elsewhere	57	16	4	77	7	10	17
Total	**764**	**226**	**43**	**1033**	**21**	**20**	**41**

Geographical distribution of patients. Fig. 1 shows that thalassaemia was initially limited to south-east England, which includes the greater London area, where most residents of Cypriot origin settled. However, most patients younger than 20 years old now reside in the Midlands (central England, including the conurbations around Birmingham) or the north (including the conurbations of Manchester and Yorkshire), reflecting different patterns of settlement among those from the Indian subcontinent and the Mediterranean area. The numbers in the figure are accurate until the end of 1994, but because there is a time lag in registering patients, the numbers for the most recent 5-year period (1995–99) will rise.

Pattern of care. The 807 patients still alive receive day-to-day care from 164 consultants. Of these consultants, 71 have only one patient, 77 have 2–9 patients, 12 have 10–30, and 4 have 50 or more (maximum 123). Many doctors with only a few patients refer them regularly to an expert centre for review.

Outcomes of affected fetuses

This assessment excludes 94 patients who were born outside the United Kingdom (Table 1). Up to the end of 1999 in the United Kingdom, there were 1346 pregnancies known to be affected, of which 980 resulted in a live birth and 366 in a termination. Fig. 2 shows that initially the couples most affected were residents of Mediterranean (mainly Cypriot) origin, but since 1975 the majority affected have been residents of Asian origin, primarily from Pakistan. The number of couples of Bangladeshi origin affected by β thalassaemia has also been increasing; they are mainly affected by haemoglobin E/β thalassaemia.

The 5-year total rose from 28 in 1950–54 to a maximum of 220 in 1985–89, and fell by 11% (to 195) in 1990–94. This was due to a decrease in the number of couples affected who were of Mediterranean (mainly Cypriot) origin. Information for this group is up to date because most affected fetuses are aborted, and abortions are recorded immediately. Between 1985 and 1999 the number of affected fetuses carried by women who were of Mediterranean origin fell by 50%, from an average of 15.8 to 6.6 per year.

Fig. 3 shows the outcomes for all known affected fetuses by 5-year interval. For example, during 1985–89 there were 223 affected fetuses. Outcomes for this cohort were: 111 terminations; 112 affected live births; 3 deaths, 2 of which were associated with bone marrow transplants; and 32 successful transplants; leaving 77 living patients with a serious β thalassaemia (35% of those conceived). Of these, 22 have a milder thalassaemia and 55 require regular blood transfusions.

Table 2. **Births and deaths of patients with thalassaemia resident in the United Kingdom**

Year of birth	No. of births	No. of deaths	No. alive (cumulative)
Before 1940	12	0	12
1940–44	9	0	21
1945–49	5	0	26
1950–54	28	3	51
1955–59	46	4	93
1960–64	106	8	191
1965–69	115	16	290
1970–74	131	23	398
1975–79	137	24	511
1980–84	135	23	623
1985–89	123	37	709
1990–94	115	46	778
1995–99	71	42	807
Total	**1033**	**226**	**807**[a]

[a] At the end of 1999 there were 764 patients known to be alive and resident in the United Kingdom. The 43 patients lost to follow-up were thought to be alive and resident in the United Kingdom because the Office of National Statistics had no record of their death or departure from the country.

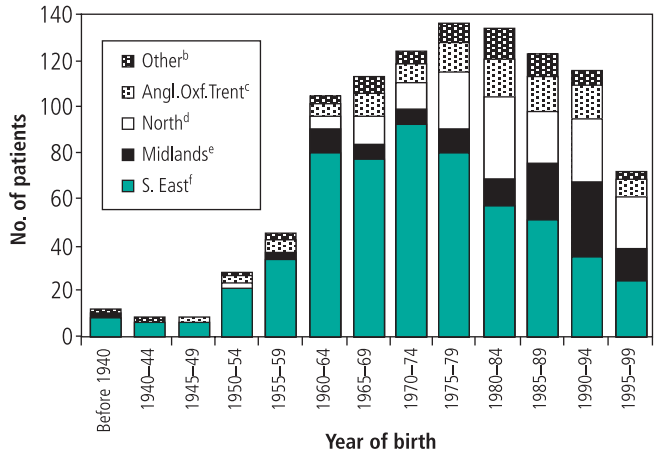
The number of affected fetuses fell by 11% between 1985–89 and 1990–94 from 223 to 198. The number of patients receiving conventional treatment has been reduced by death, bone-marrow transplantation, and selective abortion after prenatal diagnosis.

Bone marrow transplantation. Altogether, 117 of 581 patients born since 1975 had had a bone marrow transplant by the end of 1999. In this group of patients, 17 of the 46 deaths were associated with transplantation, but disease-free survival had risen from 70% to over 90% by 1990. There were two graft failures and three cases of severe, chronic graft-versus-host disease.

Utilization of prenatal diagnosis

The term utilization refers to the proportion of affected pregnancies in which a prenatal diagnosis was performed. This reached a maximum in 1985–89 when 50% of affected fetuses were aborted. The fall in utilization to 45% in 1994–99 reflects the reduced

Fig. 1. **No. of births and region of residence[a] for 1018 patients with a serious β thalassaemia and resident in the United Kingdom**



[a] The region of residence is uncertain for 15 patients lost to follow-up.

[b] Other = the West Country, Wales, and Scotland.

[c] Angl. Oxf. Trent = a broad belt to the north and west of London.

[d] North = northern England including the conurbations of Manchester and Yorkshire.

[e] Midlands = central England including the conurbations around Birmingham.

[f] S. East = south-east England including Greater London.

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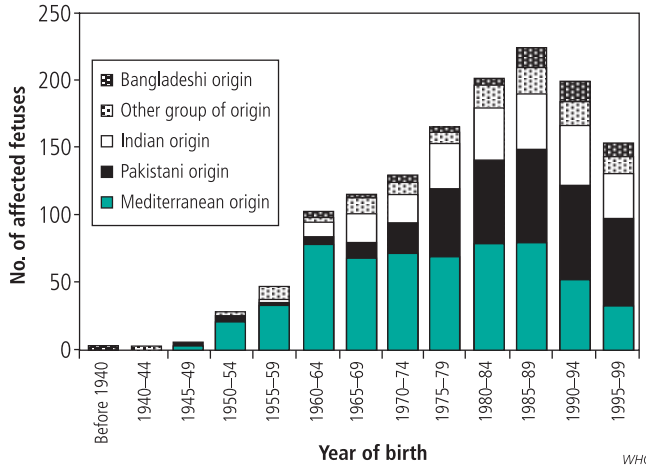
Fig. 2. **No. of fetuses with a serious β thalassaemia in the United Kingdom, by ethnic group of origin**



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number of affected fetuses conceived by parents of Mediterranean origin, almost 90% of whom had a prenatal diagnosis compared with only 20% of residents of Pakistani origin and 10% of residents of Bangladeshi origin.

Discussion

The need for registers

To assess the impact of services available for the treatment and prevention of an inherited disorder, it is necessary to know the baseline prevalence of affected fetuses. In populations in which thalassaemia genes are evenly distributed (for example, in Cyprus and Sardinia) the expected annual number of affected fetuses can be calculated using the Hardy–Weinberg equation (*29*). Calculation is far more difficult when the genes are unevenly distributed through different ethnic minority groups with rapidly changing age distributions, fertility rates, and areas of residence, as in the United Kingdom. A question on ethnicity in the 1991 United Kingdom national census permitted detailed epidemiological calculations to be made (*16, 30*). However, data from registers are more reliable. The register data confirms the results obtained by calculation and also provides information on the outcomes of affected fetuses, which can be used to improve the provision of services.

The United Kingdom Thalassaemia Register has been able to track changes in the geographical distribution and ethnic composition of the group of patients affected. Thalassaemia was first recognized as a common problem among residents of Cypriot origin, but there are now few affected births in this group although the number of residents of Mediterranean origin has doubled. This is only partly due to high uptake of prenatal diagnosis: there has also been a 50% fall in the number of fetuses affected (Fig. 2), which is the result of a combination of factors. Firstly, most first-generation immigrants from Cyprus were of reproductive age and soon had children, leading to the generational peaks and troughs, which are reflected in the peaks in affected fetuses that occurred in 1960–64 and 1980–89 (Fig. 2). Secondly, at least 20% of marriages in each generation in the United Kingdom are to people of non-Cypriot origin (*17*), and since most of these couples have a reduced risk, the proportion of affected fetuses should fall by over 50% by the third generation. Thirdly, carrier status protects against death from falciparum malaria, and deaths from malaria among non-carrier infants ensures a high prevalence of thalassaemia in malaria-endemic areas. The removal of the selection pressure of malaria would lead to a predicted fall of 15% in the prevalence of carriers and a corresponding 28% fall in affected fetuses in two generations (*29*). This effect has been directly observed in Cyprus (*31*), and must also have occurred in the United Kingdom. Finally, although knowledge of genetic risk appears to have little effect on choice of marriage partner, informed couples who are at risk often have smaller families than the population norm (*32*).

Residents of Pakistani origin living predominantly in the Midlands and the north are now the main group in the United Kingdom whose children are at risk for thalassaemia. Among this group there are at least 13 000 births per year and 1 fetus in 1000 affected (*16*); 80% of cases in which the fetus is affected end in the live birth of an infant.

Patient survival and quality of care

Although reports from expert centres show that patients who are fully adherent to iron chelation

therapy have good long-term survival (*20, 21*), the register showed that there had been an increasing number of deaths, thus giving early warning that all is not well nationally. A separate survival study confirmed unexpectedly high recent mortality in the cohort who should now be aged 25–35 years, reflecting the difficulty adolescents and young adults may experience in adhering to iron chelation therapy (*27*). Clearly, conventional subcutaneous infusion of desferrioxamine is far less effective at the national level than had been anticipated.

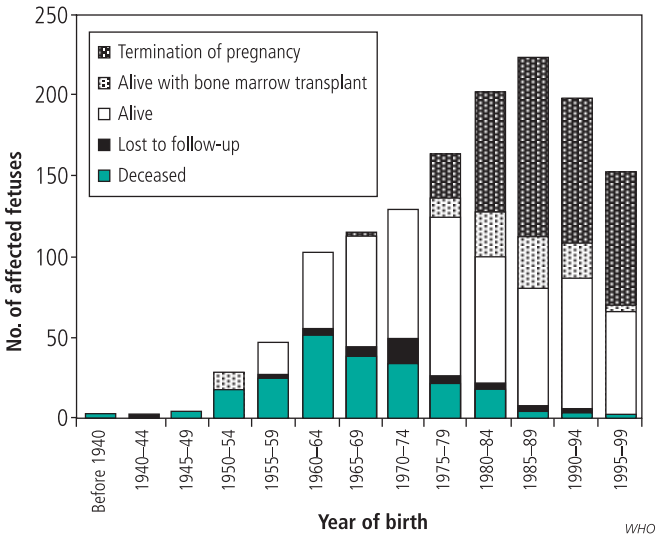
Fortunately, there are a number of new approaches to reducing the burden of treatment by tailoring iron chelation to individuals' needs. These include intensive intravenous infusion of desferrioxamine using an implantable device, home delivery of disposable infusers, use of the oral iron-chelating agent deferiprone (now licensed in Europe for patients who cannot tolerate desferrioxamine), and patient-specific combinations of the above (*33*). Because such treatment is best organized through an expert centre with a team of specialist doctors and nurses, our findings support the recommendation that all patients should either be managed at, or regularly referred to, an expert centre from an early age (*27*).

Utilization and uptake of prenatal diagnosis

Utilization of prenatal diagnosis (the proportion of pregnancies at risk for which prenatal diagnosis is performed) must be clearly distinguished from uptake (the proportion of couples who request prenatal diagnosis when informed of their risk). Only utilization can be measured by the registers. Among couples of Mediterranean origin who were at risk, more than 90% utilization has led to a major reduction in the number of children affected in south-east England. In contrast utilization among residents of Asian origin (principally those of Pakistani origin residing in the Midlands and the north) is only 20%. Consequently, national utilization of prenatal diagnosis has never risen above 50%. The marked ethnic differences raise two questions: what proportion of at-risk couples from different ethnic groups are actually identified and offered prenatal diagnosis, and when prenatal diagnosis is offered, how does uptake vary by ethnic group?

These questions were investigated in the National Confidential Enquiry into Genetic Counselling Thalassaemia Module (*34*). The enquiry team used the registers to identify all women who had had an affected fetus between 1990 and 1994 and requested access to their clinical records. This was granted in 88% of cases. The records showed that only 50% of couples at risk were identified and offered prenatal diagnosis in every pregnancy: the proportion ranged from over 80% among those of Cypriot origin to 29% among those of Pakistani origin. The average uptake of prenatal diagnosis was 86% in the first trimester and 69% in the second trimester. Therefore, the main reason for the current low utilization of prenatal diagnosis in the United Kingdom is the failure to identify and inform couples who are at risk.

Fig. 3. **Outcomes of all fetuses in the United Kingdom with major β thalassaemia to the end of December 1999**



The uptake of prenatal diagnosis, when offered, varied by ethnic group and length of gestation at counselling. For example, most residents of Pakistani origin are offered prenatal diagnosis in the second trimester: uptake is 40% and half of the affected fetuses are terminated. In contrast when it is offered in the first trimester uptake is 70% and most affected pregnancies are terminated. Clearly this group suffers from a particularly serious mismatch between the provision of services and the need for screening and counselling. An equitable service that allowed all at-risk couples to make an informed choice in the first trimester of pregnancy would reduce the average annual number of births of affected children from 23 to 8 and the number of patients with thalassaemia would stabilize (*34*).

The enquiry has shown that the objective of screening — informing parental choice — can and should be assessed by reviewing the parents' counselling history. Consequently, a question to detect risk and ask about counselling during pregnancy has been included in the new registration form for patients.

Conclusion

A national diagnosis register is a powerful instrument for national surveillance of an inherited disorder. Together the United Kingdom's Thalassaemia Register and the Register of Prenatal Diagnosis for Haemoglobin Disorders constitute a single "diagnosis register". This has demonstrated firstly, the possibility of tracking complex and rapidly changing distributions of diseases within populations and the corresponding service needs; secondly, the relatively

disappointing results of conventional treatment, indicating the need for new approaches that can be delivered through specialist centres; and thirdly, the inadequate deployment of screening and counselling in particular parts of the country and for particular ethnic groups.

The cost of running the United Kingdom Thalassaemia Register is about £40 000 (US$ 60 000) per year, including the services of a curator 2 days per week, a clinical director 1 day per week, data collection and analysis, information technology support, and reporting; the total cost is the approximate annual cost of treating three patients with thalassaemia. Costs could be significantly reduced by making thalassaemia a notifiable condition and by sharing methods and informatics expertise with similar registers for other common inherited conditions, such as sickle cell disorders, cystic fibrosis, and haemophilia, and for rare inherited disorders. In view of the rapidly growing possibilities for genetic screening, registers of inherited disorders should be incorporated into health services for surveillance purposes. ■

Acknowledgements

Almost all doctors in the United Kingdom caring for one or more patients with thalassaemia contribute data to the United Kingdom Thalassaemia Register. We thank them for their cooperation and hope to continue working with them. We thank the United Kingdom Forum on Haemoglobin Disorders and the United Kingdom Thalassaemia Society for their help and Joyce Roberts for voluntary assistance. B. Modell is a former Wellcome Principal Research Fellow, and Director of a WHO Collaborating Centre for Community Control of Hereditary Disorders.

Conflicts of interest: none declared.

Résumé

Un registre national pour la surveillance des affections héréditaires : la β-thalassémie au Royaume-Uni

Objectif Montrer la valeur d'un registre national pour la surveillance des services concernant une affection héréditaire.

Méthodes Les données de l'United Kingdom Thalassaemia Register et de l'United Kingdom Register of Prenatal Diagnosis of Haemoglobin Disorders ont été regroupées dans une base de données ; ces registres portent sur tous les fœtus chez qui un diagnostic de β-thalassémie majeure, de β-thalassémie intermédiaire ou d'hémoglobine E/β-thalassémie a été posé au Royaume-Uni. Des données ont été extraites pour indiquer l'issue de la grossesse (avortement thérapeutique ou naissance vivante) pour tous les fœtus et la situation de ceux qui sont nés avec une anomalie (vivant, décédé, transplantation de moelle osseuse réussie, ou perdu de vue) par région de résidence des parents et appartenance ethnique.

Résultats A la fin de 1999, le registre comprenait 1074 patients, dont 807 étaient en vie et résidaient au Royaume-Uni. Une transplantation de moelle osseuse avait été tentée avec succès chez 117 patients sur 581 (20 %) nés après 1975. Les résidents d'origine pakistanaise constituent maintenant le principal groupe à risque au Royaume-Uni, supplantant les résidents d'origine chypriote et entraînant un transfert sensible de la demande de services du sud-est de l'Angleterre vers les Midlands et le nord de l'Angleterre. Malgré l'acceptabilité du diagnostic prénatal, la proportion de nouveau-nés atteints reste 50 % plus élevée que ce qu'on pourrait attendre, ce qui traduit une incapacité largement répandue à fournir à temps un dépistage et un conseil aux porteurs. Même s'il existe des traitements efficaces, le nombre annuel de décès est en augmentation, ce qui indique la nécessité de traitements mieux tolérés.

Conclusion Un registre national des diagnostics est un outil puissant de surveillance du traitement et de la prévention des affections héréditaires et permet de mettre en évidence les carences que l'on peut corriger. Etant donné le développement des possibilités de dépistage génétique, il existe de solides arguments en faveur d'un financement central de telles bases de données dans le cadre de services de santé modernes.

Resumen

Registro nacional para la vigilancia de los trastornos hereditarios: beta-talasemia en el Reino Unido

Objetivo Demostrar el valor de los registros nacionales para la vigilancia de los servicios relativos a un trastorno hereditario.

Métodos Se combinaron en una misma base los datos del registro de la talasemia y del registro de diagnósticos prenatales de hemoglobinopatías, ambos del Reino Unido; en esos registros constan todos los fetos a los que se ha diagnosticado beta-talasemia mayor, beta-talasemia intermedia o hemoglobina E/beta-talasemia en el Reino Unido. Se realizó una extracción de datos para conocer el resultado (aborto selectivo o nacimiento vivo) de todos los fetos y el estado de los que nacieron con un trastorno (vivos, muertos, trasplante con éxito de la médula ósea, seguimiento interrumpido), por región de residencia de los progenitores y origen étnico.

Resultados A finales de 1999 figuraban en el registro 1074 pacientes, de los cuales 807 se encontraban vivos y residían en el Reino Unido. Se había practicado con éxito

un trasplante de médula ósea a 117/581 (20%) de los pacientes nacidos desde 1975. Los residentes de origen paquistaní forman en la actualidad el principal grupo de riesgo en el Reino Unido, y han sustituido a los residentes de origen chipriota. En consecuencia, se ha producido un marcado desplazamiento de la necesidad de servicios desde el sudeste de Inglaterra hacia las regiones central y septentrional. Pese a la aceptación del diagnóstico prenatal, la proporción de recién nacidos afectados sigue siendo un 50% superior a lo que sería de prever, reflejo de la incapacidad generalizada de detectar y asesorar oportunamente a los portadores. Aunque se dispone de tratamiento eficaz, la cifra anual de defunciones está aumentando, lo que indica que se requieren tratamientos mejor tolerados.

Conclusión Los registros nacionales de diagnósticos son instrumentos muy poderosos para vigilar el tratamiento y la prevención de los trastornos hereditarios y para poner de manifiesto las deficiencias subsanables. Habida cuenta de la posibilidad cada vez mayor de realizar cribados genéticos, existen buenas razones para que los servicios de salud modernos financien de forma centralizada ese tipo de bases de datos.

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