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Demographic Characteristics of Hospitalised Patients with Hereditary Anaemias in Bahrain

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ABSTRACT

The demographic characteristics of the patients with hereditary anaemias, who were admitted to the Salmaniya Medical Centre for the period 1980–1982 were reviewed and analysed. The majority of the patients were children, males and Bahrainis. The prevalence of hereditary anaemias was higher in rural areas than urban ones.

The hereditary anaemias are a group of anaemias which mainly include sickle cell disease, thalassaemia and glucose–6–phosphate dehydrogenase deficiency. Previous[1,2,3] studies showed that sickle cell disease and thalassaemia were highly prevalent among the children in Bahrain. Mobayed et al.[1] demonstrated that sickle cell anaemia has a high incidence among rural Bahraini children. 31% of the rural children aged 0–5 years had sickle cell anaemia, compared to 6.3% of the urban children. For the age group 6–11 years, the percentages were 43% and 10% respectively. Gregory and Blair[2] have reported that 14% of the children attending Salman Culture Centre in Bahrain were anaemic. Among 92 privileged children studied, 1% had sickle cell anaemia and 7.6% had possible thalassaemia minor. Another study among Bahraini girls aged 7–18 years has reported that 12% had thalassaemia minor, a mild form of the hereditary anaemia[3].

The high incidence of hereditary anaemias in the developing countries will make big demands on the health resources[4]. In Bahrain, the hereditary anaemias are becoming a major public health problem. Information on the natural history of such anaemias is needed in order to establish proper preventive and curative programmes[4]. Unfortunately, there is insufficient information on the incidence of hereditary anaemias among the Bahraini population. The present paper, therefore, was aimed to provide some baseline data on hereditary anaemias among hospitalised patients in Bahrain.

METHODS

The data for this study was obtained from the Salmaniya Medical Information System. Data related to hereditary anaemias was correlated with age, sex, nationality and place of residence of hospitalised patients, with such diseases.

All patients with hereditary anaemias as the first diagnosis were included in the study, for the period

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1980–1982. Patients with hereditary anaemias as the second and third diagnosis were excluded from the study in order to avoid duplication and over-lapping of the results.

As hereditary anaemias are a group of non-nutritional anaemias (hereditary spherocytosis, glucose-6-phosphate dehydrogenase deficiency, thalassaemias, and sickle-cell anaemia), it is important to know the distribution of patients by each type of anaemia. Unfortunately the data available from the Salmaniya Medical Information System was grouped under the heading hereditary anaemias. Therefore, information regarding the prevalence of each anaemia among hospitalised patients could not be obtained.

RESULTS

The age distribution of hospitalised patients with hereditary anaemias is shown in Table 1. In general the prevalence of hereditary anaemias was higher among children than adults. For the year 1982, 25.7% of the hospitalised anaemics were in the age group 1–4 years, compared to 28.5% for the age groups 5–9 years and 10–19 years, respectively. Whereas, only 18.8% of the hospitalised anaemics were older than 19 years of age.

TABLE 1

Age distribution of hospitalised patients with hereditary anaemias (1980–1982).

Age (years)	1980		1981		1982	
	No.	*%*	*No.*	*%*	*No.*	*%*
< 1	10	3.9	9	2.7	9	1.8
1–4	60	23.2	73	21.9	129	25.7
5–9	73	28.2	91	27.4	143	28.5
10–19	76	29.3	107	32.1	126	25.2
20 +	40	15.4	53	15.9	94	18.8
Total	**259**	**100.0**	**333**	**100.0**	**501**	**100.0**

In 1980, 64.9% of the hospitalised anaemics were males. However, the proportion of males decreased to 59.5% in the year 1981 and to 56.1% in 1982 (Table 2).

TABLE 2

Sex distribution of hospitalised patients with hereditary anaemias (1980–1982).

Sex	1980		1981		1982	
	No.	*%*	*No.*	*%*	*No.*	*%*
Male	168	64.9	198	59.5	281	56.1
Female	91	35.1	135	40.5	220	43.9
Total	**259**	**100.0**	**333**	**100.0**	**501**	**100.0**

The nationality distribution of hospitalised patients with hereditary anaemias is presented in Table 3. The table shows that almost all the anaemics were Bahrainis (98.1%, 97.9% and 99% for the years 1980, 1981 and 1982 respectively).

TABLE 3

Nationality distribution of hospitalised patients with hereditary anaemias (1980–1982).

Nationality	1980		1981		1982	
	No.	*%*	*No.*	*%*	*No.*	*%*
Bahraini	254	98.1	326	97.9	496	99.0
Non-Bahraini	5	1.9	7	2.1	5	1.0
Total	**259**	**100.0**	**333**	**100.0**	**501**	**100.0**

In respect to the geographical distribution, it was found that the prevalence of the hereditary anaemias was higher in rural areas than urban ones. Cities like Hidd, Rifa'a, and Muharraq had the lowest prevalence (0.8%, 1.4% and 5.8%, respectively for the year 1982). Manama city (23.9%) and Jiddhafs area

(22.3%), had the highest prevalence. There was a slight change in the geographical distribution of the anaemia cases for the years 1980, 1981 and 1982 (Table 4).

TABLE 4

Geographical distribution of hospitalised patients with hereditary anaemias (1980–1982).

Geographical area	1980		1981		1982*	
	No.	%	*No.*	%	*No.*	%
Hidd	1	0.4	—	—	4	0.8
Muharraq	15	5.8	25	7.5	29	5.8
Manama	70	27.0	93	28.0	119	23.9
Jiddhafs	49	19.0	66	19.8	111	22.3
Northern area	25	9.7	26	7.8	42	8.4
Sitra	26	10.0	24	7.2	58	11.7
Central area	12	4.6	22	6.6	38	7.6
Isa Town	22	8.5	25	7.5	43	8.6
Rifa'a	4	1.5	10	3.0	7	1.4
Western area	35	13.5	42	12.6	47	9.5
Total	**259**	**100.0**	**333**	**100.0**	**498**	**100.0**

*Three cases were unknown.

Age and sex distribution of hospitalised Bahraini patients with hereditary anaemias for the year 1982 is illustrated in Table 5. This group of anaemias was highly prevalent among age groups 1–4 years and 5–9 years. These two groups represented about 50% of the all hospitalised anaemics. In general the majority of the hospitalised anaemics were less than 15 years of age. The sex distribution of anaemics shows that the percentages of males were higher than females in the age group 5–9 years and 10–14 years. However, the percentages of females increased in other age groups except for those less than 4 years.

TABLE 5

Age and sex distribution of hospitalised Bahraini patients with hereditary anaemias for the year 1982.

Age (years)	Male		Female		Total	
	No.	%	*No.*	%	*No.*	%
< 1	4	1.4	4	1.8	8	1.6
1–4	73	26.4	54	24.7	127	25.6
5–9	92	33.2	51	23.3	143	28.8
10–14	54	19.5	31	14.1	85	17.1
15–19	17	6.1	23	10.5	40	8.1
20–24	14	5.1	24	11.0	38	7.7
25 +	23	8.3	32	14.6	55	11.1
Total	**277**	**100.0**	**219**	**100.0**	**496**	**100.0**

DISCUSSION

The present paper shows that there was an increase in the number of patients with hereditary anaemias. This may be attributed to different factors;

(a) Increase in the diagnosis of various anaemias since such diseases are very common among the Bahraini population.
(b) Raising the health awareness of people by increasing the educational programmes regarding these diseases in the mass media.
(c) Increase in the population which led to an increase in the number of patients being admitted to hospitals.
(d) Improving the diagnosis and biochemical asessments used to detect these diseases.

The study by Mobayed et al[1] showed that the incidence of sickle-cell anaemia was higher among male children aged 6–11 years, than female. Their results are in agreement with our findings, that hereditary anaemias were more common among males in the age group 5–14 years (Table 5).

The high prevalence of hereditary anaemias mainly affected Bahraini inhabitants but not the expatriates, since the majority of patients with such diseases

were Bahrainis. The same finding was reported in Saudi Arabia where the prevalence of sickle-cell anaemia and thalassaemia was lower among the expatriate students than Saudis[5]. It is believable that children with hereditary anaemias survive to adult life due to the improvement of health care in Bahrain. Furthermore the custom of marrying among close relatives over the generations concentrates the abnormal gene and this raised the prevalence of such anaemias in Bahrain.

Hereditary anaemias are a problem of concern in Bahrain, since such diseases are both common and chronic. The actual incidence of affected births is still unknown. However the high birth rate in Bahrain means that many of the marriages have the risk of producing an affected child, especially in the rural areas, where the prevelence is high. In sickle-cell disease deaths may occur in early childhood due to overwhelming infections. Studies showed that the deaths from thalassaemia major represent 15% of patients in 1–24 years age groups. In the absence of a prevention programme this percentage will rise to 30%, while it will drop to 5% when there is an intensive prevention programme[4].

Pilot studies in many other countries have shown that it is possible to control the hereditary anaemias if suitable prevention measures are taken. The main measures are proper health education, population screening, genetic counselling and antenatal diagnosis[4,6]. Physicians and other health workers who are involved with treatment of hereditary anaemias should also have experience of the symptoms of these diseases as well as some training to deal with social and psychological problems as they arise[7].

CONCLUSION

The hereditary anaemias are a major drain on the health resources, and in the absence of a planned prevention programme, the development of health services would be affected by providing the facilities to treat large number of patients with such genetic diseases[4]. It is recommended, therefore to establish a prevention programme, taking into consideration the custom, tradition and other characteristics of the population in Bahrain. Proper health education, population screening, and pre-marital counselling should also be taken into consideration in order to reduce the incidence of hereditary anaemias in the community.

Further studies on the social and health factors associated with hereditary anaemias are strongly recommended.

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