

NATIONAL NEONATAL HYPOTHYROID SCREENING PROGRAM IN MONGOLIA

Sereegotov Erdenechimeg

Department of Nuclear Medicine, Ulaanbaatar, Mongolia

Abstract. This study was motivated by the desire to identify patients with congenital hypothyroidism for early treatment. A pilot project was developed by the Department of Nuclear Medicine and initial screening was began at 2 of the maternity houses in Ulaanbaatar. The methodology used for these activities involved collecting samples by heel prick at 3-4 days of age and analysed for TSH by immunoradiometric testing (Skybio Ltd, United Kingdom). From July 2000 to September 2001, 1,529 babies were screened. Although there were no positive screens from neonatal screening, TSH was high and T4 was low in 2 cases referred by the endocrinologist and therefore leading to treatment. The programme appears to be of important significance to the country and thus committed to further improving the implementation of the program.

INTRODUCTION

Mongolia is a landlocked country situated between Russia, Kazakhstan and China. It has a large geographical territory of 1.56 million km² with a population of 2.4 million, with 32.5% living in the capital city of Ulaanbaatar where almost over 28% of newborn babies are born here. The Nationwide crude birth rate is 14.6 per 1,000 people and the total birth rate per annum is 35,000. Infant mortality decreased from 63.4 in 1990 to 34.4 per 1,000 livebirths in 2000. The main causes for infant mortality are: (1) respiratory infections, principally pneumonia (55%); (2) infectious and parasitic diseases (19.5%); (3) birth traumas (17.5%); and (4) gastrointestinal illnesses (8.4%). The perinatal mortality rate is high. It accounts for 35% of all infant deaths mainly due to neonatal deaths caused by asphyxia and prematurity.

PROBLEM

The iodine deficiency situation in Mongolia is intermediate between mild and moderate deficiency. The total goiter rate was 41% for children and 28% for the total population in 1998. Although cases of CH have not been studied, the National Endocrinology Department of the Maternal and Child Care Center diagnosed 12 cases of CH among its pediatric patients from 1989-1999 (1:3,057). With the goal of developing a National Hypothyroid Screening Program in Mongolia, the following objectives have been identified:

- Start a pilot study and initiate newborn screening for CH in Ulaanbaatar;

- Expand neonatal screening to cover more newborns;
- Achieve a national mandate for CH screening;
- Develop a program for educating policy makers, health personnel and the general public;
- Seek financial assistance for the program from different organisations;
- Start the use of bulk reagents for screening TSH levels in dried blood spots;
- Start a quality assurance program.

Due to the lack of a legal environment, it was difficult to undertake wide scale public awareness activities and use mass media; it also created problems for finding financial assistance. Negotiations with the Ministry of Health are underway.

PILOT PROJECT

A pilot project based at the Department of Nuclear Medicine was developed and the initial screening started for 2 of the maternity houses (total of 4 public and 1 private maternity houses) in Ulaanbaatar. At present there is an inter-institutional agreement between the Department of Nuclear Medicine and the Maternal and Child Care Center and Maternity house 1. According to this agreement, blood is collected and used in screening programmes. Samples were collected by heel prick within 3-4 days of age. A technologist goes twice a week to bring the collected blood from the Maternity Houses. Sample analysis use IRMA kits from Skybio Ltd, (United Kingdom) provided by IAEA, which arrive every two months. At the end of the process, quality assurance is performed by NEQAS from the United Kingdom.

Table 1. Number of babies screened in the country.

Period	Number of newborn babies		Number of babies screened		Percentage of screened babies		CHT	
	National	UB	National	UB	National	UB	National	UB
2000	34,814	9,947	403	403	1.15	4	-	-
By Sept.- 2001	32,648	10,089	1,529	1,529	4.68	15.15	-	-

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PROGRESS OF THE PROGRAM TO DATE

Beginning in July 2000, 2 IRMA kits were received and a total of 403 babies were screened in 2000. The number of babies screened by September 2001 (4 kits received in 2001) reached 1,529. Although there were no positive responses in neonatal screening, for 2 babies that were sent for analysis by the endocrinologist, TSH was high and T4 was low and they therefore were treated.

TRAINING

In the framework of this program, 3 seminars on "Significance of the CH Screening" were organized involving pediatricians, obstetricians, endocrinologists, NM physicians and nurses. Mr Ganzorig, the Director of the Atomic Energy Commission, opened the seminar and a wide range of video training materials from the IAEA were used. Four technologists have been trained to do blood collection. The methodology has been printed and distributed among maternity houses. In the newspaper "Physician", 2 articles were published entitled "What is CH? Its negative side effects, diagnosis and treatment,"¹ and "Activities undertaken in Southeastern Asia and possibilities for implementation in our country". In order to increase public awareness, radio interviews have also been given on the subject.

Future objectives include:

1. Developing and passing relevant laws and legislation;
2. Identifying financial sources;
3. Expanding public awareness;
4. Involving all newborn babies of Ulaanbaatar in the period of 2002-2003 (30% of the total newborn babies)
5. Expanding the national program.

CONCLUSION

For a country with a very small population, every newborn is an invaluable asset, and newborn screening should have a great deal of value to the society. The program is considered to be of important significance to the country and there is commitment to further improve the implementation of the program.

REFERENCES

- Mongolia Health Sector Review, June 2001.
 National Statistical Bulletin, 2000.
 National research paper on iodine deficiency, Mongolia.

¹ The article was prepared by Dr Oyun, Coordinator of the CH Screening Program.