NEONATAL SCREENING FOR TREATABLE CONGENITAL DISORDERS

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Background

Congenital hypothyroidism is a treatable disease if detected at the early stage of life. It is one of the most frequent cause of mental retardation in children. In 85 % of cases, congenital hypothyroidism is a consequence of thyroid disgenesis, in which the gland is either absent, located ectopically and/or severely reduced in size. Early detection and treatment with thyroid hormone supplement can significantly reduce mental damage.

In 1996, Thailand initiated a neonatal screening programme for congenital hypothyroidism (CHT) and phenylketonuria (PKU), with the objective of bringing a better quality of life to people throughout the country, but especially in the remote areas. The programme involves implementing routine screening nationwide. The plan of action was designed with the goal of having public health service units throughout the country provide neonatal screening by year 2002 for the 1.2 million babies born per annum in Thailand. The government supported the programme by allocating a five-year budget of approximately US$15 million. The programme received additional assistance through technical support and human resource development from the International Atomic Energy Agency (IAEA) and the US Centers for Disease Control. This assistance promoted self-sustainability and strengthened the programme's technical base.

The programme is on track. It is expected that by year 2002 all new born babies in Thailand will bescreened for CHT and PKU.

Methodology

The implementation of the screening programme has been performed through public health sectors all over the country. These involve: education of the health personnel as well as communities, implementation of routine specimens collection, delivery system to central laboratories, establishment of central laboratory screening services and routine follow up of the case management. Local in house reagents using ELISA and IRMA techniques have been developed and utilized as screening and confirmation tests for CHT. In addition, Guthrie's test has been used for PKU screening and automated Fluorometry has been selected for PKU confirmation.

Results

Since the beginning of NSP in 1996, the number of provinces participating in the programme and the number of babies screened have increased steadily. So far 1,425,025 babies in Thailand were screened and it was found that 3,450 (0.24%) were above the first screening cut off for CHT and 321 (0.02%) for PKU. (TSH > 25mU/L and PKU > 4 mg/dl). With 65.5% follow-up, the incidences were confirmed as 1:3,314 for CHT and 1:285,005 for PKU. In addition, all 724 community hospitals provided the screening services as one of the basic requirements for newborns according to the public health policy.

Conclusion

The NSP has been implemented as routine practice for all public health sectors all over the country for CHT and PKU. It is expected that by the year 2002, all Thai newborns will be provided with the screening services resulting in a better quality of life for the next generation.