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– Contents –

A Pilot Study of Congenitally Deformed Children at the Tien Medical Center of Yong-Ho

A suspected case of congenital rubella was reported by the Tien Medical Center of Yong-Ho on 13 April 1990. A team was then sent to the Center for investigation. The investigation revealed that the patient was a 36-week premature with a birth weight of 2,150 gm and relatively poor conditions at birth. The baby died two days after birth from cardiac failure.

The Department of Health began in 1986 to vaccinate all female students of the third year junior high (9th grade) against rubella. Yet women of child-bearing ages between 20 and 35 years are not vaccinated, and ony 50% of them have been infected by rubella. The Department has a plan to vaccinate all women of child-bearing ages to eventually control congenital rubella syndromes by the year 1995.

To further understand the occurrence and distribution of congenitally deformed children among infants, a pilot study was conducted at the Paediatric Department of the Tien Medical Center of Yong-Ho in Taipei County.

The study uses all newborns between 1st January and 31 December 1987 (including those born in the Center and those referred to the Center by other hospitals) as the study population. During this period, 817 babies were born in the Center and 428 referred, totaling 1,299. Records of hospitalization and discharge of these newborns have been reviewed to come up with 69 suspected cases, whose medical records are further studied to finally come up with 44 confirmed cases. Of them, information on medical records of 41 cases (93.2%) has been transferred to a questionnaire. The questionnaire includes basic information of the newborn, basic information of parents, disease or anomalies in the family, and examinations for congenital anomalies (followig the International Classification of Illnesses, Injuries and Causes of Death). The operational definition of congential anomalies used in the study is the diagnosis of physicians as appeared on the medical records. Examinations include: general observation, ECG, testings of chromosomes and serum, and x-ray examination. Incomplete information on medical records is checked with family members through telephone. Of the 41 patients, 18 have been followed-up through telephone. Failures to telephone enquries are due to changes of address of telephone number.

Of the 41 cases, 14 (34.1%) live in Yong-Ho City, 6 (14.6%) in Chung-Ho City, and 10 (24.2%) in Panchiao City (see Table 1). Four of them died after birth. The three year survival rate is 90%. Of the four died the diagnoses show one incomplete occlusion of artery, one Down's disease and two of unspecified cardiac anomalies.

19 (46.3%) of the cases are male, and 22 (53.7%) female. Most of them were born in the months of June, July, November and December (see Figure 1). 11 cases are diagnosed as unspecified cardiac anomalies (26.8%) (cases recorded as congenital heart diseases without specific information are grouped under this category), 8 as incomplete occlusion of artery (19.5%), 5 as other specified anomalies of skin (12.2%), and 4 as deformities of cardiac septum (9.8%) (see Table 2).

When body weight at birth of 2,500 gm is used as a point of reference, 21 of the 41 cases (51%) come under 2,500 gm and 20 (49%) are above 2,500 gm (see Table 3). Of the 41 caes, one is known to have been operated upon (2%). The age distributions of fathers are: 19 in age group 26-30 (46.4%), and 15 in age group above 31 years (36%). For mothers, 13 are in age group 26-30 (31.6%), and 13 in age group above 31 years. Fathers of 11 cases are in the junior high school level (26.8%), all 11 in the senior high or vocational school level (24.4%). 18 mothers are in the senior high or vocational school level (43.9%), and 6 are in the junior high school level (14.6%). Very few are university graduates.

Information on medical records is not clear as to whether mothers had taken any Chinese or western medicines during pregnancy. The follow-up by telephone of 18 mothers reveals that on had taken Chinese medicine for flu, one had IV drops for morning sickness, and one took medicines prescribed by an obGyn doctor. The others either did not take andy medicine or did not remember about it.

Diseases or anomalies of family members are not recorded in detail on medical records. The telephone follow-up reveals that one member of a family is hypertensive and another one has heart disease. The others either reply no or do not know if any of family members is ill.

Congenital rubella syndromes will lead to fetal death, spontaneous abortion, and cause the fetus to devlop: congenital deafness, congenital cataract, mental retardation, incomplete occlusion of artery, deformities of cardiac septum, purpura, hepatomegaly and splenomegaly, jaundice, skeletal deformities, etc. Congenital anomalies are difficult on children, they are also a heavy burden to the family and the society as a whole. The epidemic pattern of rubella in Taiwan has changed from one serious epidemic every ten years to local epidemics. The disease surveillance systems in Taiwan are not well established yet, and information on the occurrence of congenital rubella syndromes is not readily available. Though active maternal and child health programs have brought down the infant mortality rate from 44.7 per 1,000 in 1952 to only 5.1 in 1987, the threat of congenital anomalies to the lives of children is increasing. 31.1% of all infant deaths are due to congenital anomalies, which is the first leading cause of infant deaths.

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partment, the Tien Medical Center/Yong-Ho.

Editorial Note: The survery was conducted at the Tien Medical Center of Yong-Ho because a case of suspected congenital rubella was reported by the Center in April 1990. Therefore, most cases come from the neighboring cities, such as Yong-Ho, Chung-Ho and Pan-Chiao. The survey was only for a year, the accumulated number of cases was not large enough. More studies are needed to understand the long-term trend of congenital anomalies. The risk factors for congenital anomalies are many. Available literatures list the following:

1) chromosomal anomalies: the abnormality of chromosomes either in number or structure such as the Down's disease.

2) genetic disorders of mon-gene: dominant heredity of autosomes, recessive heredity of autosomes, and chain heredity of sex chromosomes.

3) genetic disorders of multi-genes.

4) environmental hazards: cause mutation of genes, they are:
   (1) drugs and chemical substances: drugs that could cause anomalies of fetuses are: anti-carcinoma medicines, sex hormones and Thalidomide; drugs that may cause anomalies of fetuses are: antihistamines, antithyroids and cortical hormones; drugs that are toxic to fetuses are: narcotics, drugs for cardiovacular disease, anti-coagulants and sedatives;
   (2) radiation;
   (3) microbic infections: some common infections are those caused by rubella virus, herpes simplex virus, Cytomegalovims and Toxoplasma gondii;
   (4) diabetes mellitus in preganant women, particularly those with a history of more than ten years, is likely to lead to abortion, premature birth, stillbirth and deformed children;
   (5) malnutrition: in particular, vitamin deficiency;
   (6) hypoxia of perinatal period;
   (7) ages of parents: chromosome changes are more likely to occur in pregnant women of older ages;
   (8) marriage between close relatives

The purpose of the study is to alert the public to the importance of congenital anomalies. Further studies, however, are needed to understand the risk factors of congenital anomalies.

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Figure 1.
Distribution of Cases by Month at the Tien Medical Center in 1987.

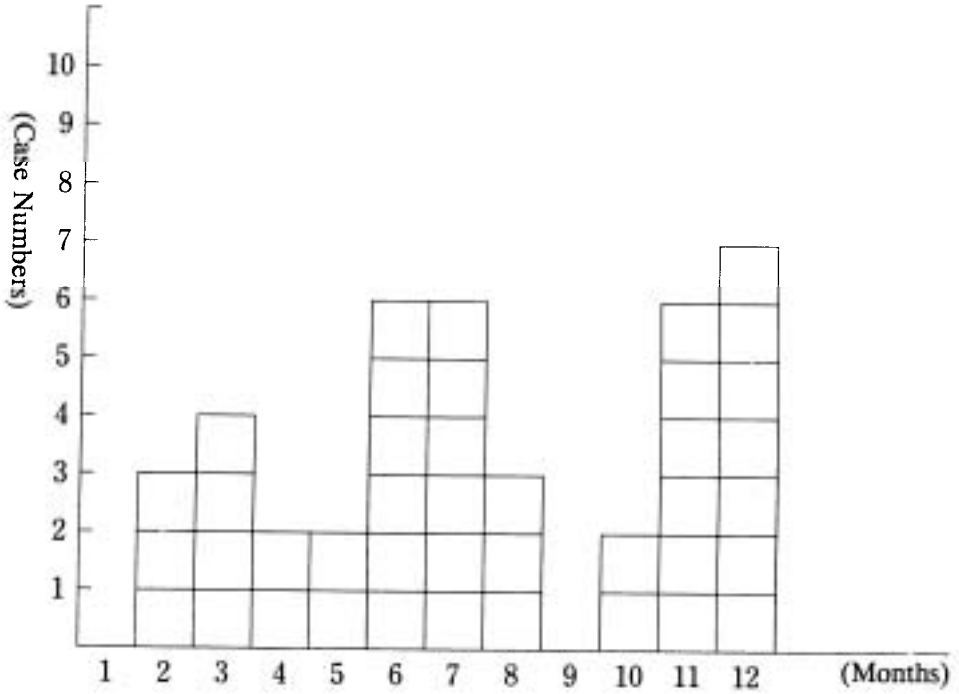

Table 1. Distribution of Congenitally Deformed Children by Area

Area	No.	%
Yong-Ho	14	34.1
Panchiao	10	24.4
Chung-Ho	6	14.6
San-Chung	3	7.3
Taipei	2	4.9
Hsin-Tien	1	2.4
Keelung	1	2.4
SanoHsia	1	2.4
Shu-Lin	1	2.4
Juei-Fang	1	2.4
Tu-Cheng	1	2.4
Total	41	100.0

Table 2. Distribution of Cases by Disease

ICD No.	Disease	No.	%
742.3	Congenital hydrocephalus	2	4.9
745.2	Tetralogy of Fallot	1	2.4
745.4	Amomalies of cardiac septum	4	9.8
745.5	Ostium secundum type atrial septal defect	2	4.9
746.8	Other specified anomalies of heart	1	2.4
746.9	Unspecified anomalies of heart	11	26.8
747.0	Incomplete occlusion of artery	8	19.5
748.6	Other anomalies of lung	1	2.4
749.0	Cleft palate	1	2.4
749.1	Cleft lip	2	4.9
751.8	Other specified anomalies of digestive system	1	2.4
752.5	Retained testicle	1	2.4
752.8	Other specified anomalies of genital organs	1	2.4
754.3	Congenital dislocation of the hip	1	2.4
756.4	Failure of normal cartilage development	1	2.4
756.9	Unspecified musculoskeletal anomalies	1	2.4
757.3	Other specified anomalies of skin	5	12.2
758.0	Down's syndrome	1	2.4
759.9	Unspecified anomalies of integument	1	2.4

Table 3. Distribution of Body Weight of Cases

Body weight at birth	No.	%
Less than 1,500 gm	9	22
1501-2500	12	29
2501-3500	15	37
3501+	5	12