CHAPTER II

MATERIALS AND METHOD

Materials :-

The basis of this study was a series of plasma bilirubin (bile pigment) estimation at approximately daily intervals, on 101 Thai healthy newborn infants which were selected from Pramongkutklao Hospital, Thailand, from October 1979 through December 1980. They were divided into the following 3 groups depending on the pattern of mothers' labour and doses of oxytocin (Syntocinon®) which they were received.

The first group as control group, consisted of 51 mothers whose ages ranged from 18 to 35 years old, average 26.5 years old, who started labour spontaneously and were not received intravenous oxytocin mixture. They gave birth to 25 female and 26 male babies; their gestational ages ranged from 38 to 42 weeks, average 40 weeks; birth weight ranged from 2,500 to 3,830 grams, average 3,165 grams.

The second group (subject I) consisted of 34 mothers whose ages ranged from 19 to 35 years old, average 27 years old, who started labour spontaneously and were received intravenous oxytocin mixture less than 400 ml. to expedite labour. They gave birth to 22 female and 12 male babies; their gestational ages ranged from 38 to 42 weeks,

average 40 weeks; birth weight ranged from 2,550 to 3,880 grams, average 3,215 grams.

The third group (subject II) consisted of 16 mothers whose ages ranged from 20 to 32 years old, average 26 years old, who started labour spontaneously and were received intravenous oxytocin mixture more over 400 ml. to expedite labour. They gave birth to 10 female and 6 male babies; their gestational ages ranged from 39 to 42 weeks, average 40.5 weeks; birth weight ranged from 2,520 to 3,660 grams, average 3,090 grams.

Cases of multiple birth (more than 3) and infants delivered by instrumentally or caesarean section were all excluded from this study.

All infants were examined within 24 hours of birth and received routine care in nurseries. Laboratoried Rhesus and ABO incompatibility between mothers' and babies' blood group; babies' glucose 6-phosphate dehydrogenase deficiency; evidence of birth trauma; and clinical detectable pathology in mothers and infants; were all excluded also.

Method :-

A standard mixture of 10 units of oxytocin in 1,000 ml. of dextrose 5% in water was used. The rate infusion started at 10 drops per minute and increase 5 drops per minute every 30 minutes to maximum of 40 drops per minute. The drip rate of labour were recorded and the dose of oxytocin administered during each patient labour was

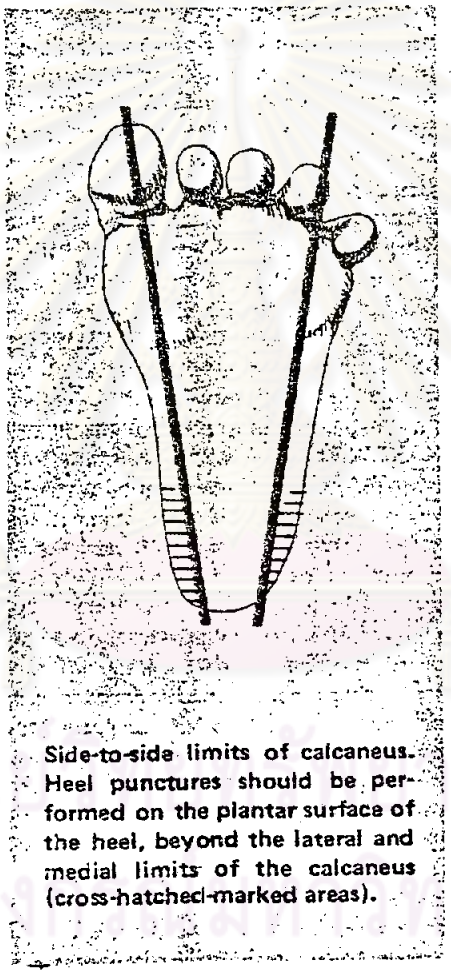
calculated.

All babies were received an intramuscularly of 1 mg. of phytomenadione (vitamin K1) within first day of life. Water and milk feed were started by 6 and 12 hours ages. All of them had received milk every 4 hours; 15 ml. in the first day, 30 ml. in the second day, and 45 ml. in the third day of life. None of them were breast feeding, all being on modified cow's milk.

Capillary blood sample was collected by heel prick (figure 8) from each infant in the morning on the first day of life and thereafter daily at the same time for the next 2 days. The blood samples were centrifuged for 5 minutes to separate serum. The neonatal total serum bilirubin concentration was estimated by using a direct reading AO Bilirubinnometer (American Optical Cooperation, U.S.A.) (see appendix). The results obtained from this method correlating well with those by the method of Malloy and Evelyn (1937). Infants whose serum bilirubin concentration reached or exceeded 14.5 mg. per 100 ml. were considered to have hyperbilirubinemia and subjected to phototherapy.

Laboratory data such as hematocrit (packed cells volume) value of infants blood which measured by Micro-capillary Tube Reader no. 2201 (see appendix), blood group, Rh factor determination, serologic test for syphilis in mother, and drugs which mothers had received 3 months before delivery were recorded. The results of bilirubin level were subjected to statistical evaluation. Statistical difference

Figure 8. Guidelines for heel puncture to obtain blood in newborns (Blumenfeld, T.A., et al. 1979).



Side-to-side limits of calcaneus. Heel punctures should be performed on the plantar surface of the heel, beyond the lateral and medial limits of the calcaneus (cross-hatched-marked areas).

between control group and subject groups were calculated by using the "T" test.

Medicament :-

Syntocinon® injection (Sandoz Ltd./Diethelm & Co. Ltd.)

It is oxytocin injection, USP., synthetic polypeptide consisting of 8 amino acids.

Each ml. contains :- 10 USP. units (international units) of 1 mg. sodium acetate, USP; 0.5% chlorobutanol, USP; 0.61% by volume alcohol, USP; acetic acid, USP; qs to pH 4 ± 0.3; and water for injection, USP, qs to 1 ml.

Instruments :-

AO Bilirubinometer model 10200 (see appendix)

Micro-capillary Reader I.E.C. CAT. no. 2201 (see appendix)

Heparinized Micro Hematocrit Capillary Tube

I.E.C., M.B. Centrifuge Micro Hematocrit (Damon/I.E.C. Division)

Lancet (for heel puncture).