

The Well Baby Certificate for Puerperal Sterilization – A Critical Appraisal

From August 2004 to July 2005 at Coimbatore Medical College Hospital, Tamilnadu, the process of issuing well baby certificate to 1668 babies of 1658 mothers electing to undergo puerperal sterilization within a week of delivery was analyzed. 1553 babies (93.1%) were issued well baby certificates. Certificates were deferred in 88 babies (5.3%) and it was refused in 27 (1.6%). Reasons are analyzed and discussed.

Key words: Congenital malformation, Puerperal sterilization, Well baby certificate.

Pediatrician's certificate of neonatal wellbeing is an essential prerequisite before proceeding with puerperal sterilization (PS). This is to ensure that the neonates do not have an identifiable life threatening or life disabling condition that might make the mother who had underwent puerperal sterilization regret her decision and consider bearing another child by means of recanalization procedure which can have a pregnancy rate of only upto 60% even in the best hands [1,2]. Clinical examination by a qualified pediatric physician is currently the only requisite for issuing the certificate and routine laboratory or imaging procedures are not undertaken. We evaluated the process of issuing well baby certificates to babies of these mothers within the first 7 days after delivery at Coimbatore Medical College Hospital, Tamil Nadu from August 2004 to July 2005.

1668 babies (10 twins) of 1658 mothers, who elected to undergo puerperal sterilization out of 5873 mothers delivering vaginally were studied. There were 29 instances of previous sibling death in infancy among these 1658 and 6 of these deaths happened in the neonatal period. 210 of the 1668 babies weighed less than 2.5kg (low birth weight) and within them 17 (16 small for date and one preterm) weighed less than 2 kg. Overall, certificates were refused in 27 (1.6%) of 1668 babies and deferred (for less than a week) in 88 (5.3%). 1553 were issued well baby certificates on their first visit and 88 were cleared in the second examination within a week. The reasons for refusal were low birth weight (7), malformations like Down's syndrome (1), microcephaly (1), ventricular septal defects (4), hypospadias (2), cleft lip and palate (1), rectovaginal fistula (1), undescended testes (3), chordee (1), dystrophic talipes equinovarus (2), ichthyosis (2), and dislocated hip

(2). The reasons for deferral were umbilical sepsis (14), conjunctivitis (12), pyoderma (32), jaundice (22), hypothermia (1), pyrexia (2), wide anterior fontanelle for thyroid test (2), umbilical bleeding (1) and candida rash (2). Two of the babies whose mothers had undergone PS on the strength of our well baby certificates presented to us later in the infancy with congestive cardiac failure due to ventricular septal defects.

The so called 'regret factor' in puerperal sterilization wherein the mothers who underwent PS later lamented (regretted) their decision to undergo PS is correlated to young age and remarriage in developed countries; whereas death of the infant is the major factor for regret and demand for reversal in less developed countries [3]. In a previous published study from India, 14 of the 1084 mothers who underwent PS over a 10 year period in a private clinic regretted their decision later-on due to infant deaths [4].

Ideally, certifying baby's well being for maternal PS should be as rigorous as the process of issuing a pediatrician's certificate for adoption of infants that is followed in many countries [5]. These include, apart from a detailed clinical examination, a normal inborn error of metabolism (IEM) screening report, negative serology for HIV, hepatitis B and hepatitis C as well as a normal cardiac echocardiography and abdominal ultrasound in selected cases. The prevalence of hypothyroidism in a recent Indian neonatal screening program is 1 in 1700 and many inborn error of metabolisms have a prevalence rate of less than 1:2000 [6]. Targeted IEM screening would have been in order for those babies whose mothers had previous sib deaths in infancy. This certification process can be made more foolproof if cardiac imaging is done by pediatricians trained in basic echocardiography [7]. In an increasingly litigious environment that exists in India today, it is in our interest that an informed written consent is taken explaining the above facts to the parents.

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G KARTHIKEYAN AND TL RATNAKUMARI
Neonatal Division, Department of Pediatrics,
Coimbatore Medical College Hospital,
Coimbatore 641 018, TN.
drkkarthikeyan@yahoo.co.uk

REFERENCES

1. Jayakrishnan K, Baheti SN. Laparoscopic tubal sterilization reversal and fertility outcomes. *J Hum Reprod Sci.* 2011;4:125-9.
2. Jain M, Jain P, Garg R, Tripathi FM. Microsurgical tubal recanalization: A hope for the hopeless. *Indian J Plast Surg.* 2003;36:66-70.
3. Chi IC, Jones DB. Incidence, risk factors and prevention of post sterilization regret in women: an updated international review from an epidemiological perspective. *Obstet Gynecol Surv.* 1994;49:722-32.
4. Adatia MD, Adatia SM. A ten year survey of sterilization operations in women. *J Obstet Gynaecol India.* 1966;16:423-6.
5. Mather M. Adoption: a forgotten paediatric speciality. *Arch Dis Child.* 1999;81:492-5.
6. Devi AR, Naushad SM. Newborn screening in India. *Indian J Pediatr.* 2004;71:157-60.
7. Katumba-Lunyanya JL. Neonatal/infant echocardiography by the non-cardiologist: a personal practice, past, present, and future. *Arch Dis Child Fetal Neonatal Ed.* 2002; 86:F55-7.

Intestinal Permeability in Normally Nourished and Malnourished Children with and without Diarrhea

We evaluated the association between diarrhea, malnutrition and intestinal function using the lactulose-mannitol test. Our study showed that a third of all children have abnormal intestinal permeability, there was an expected increase of permeability in children with acute diarrhea and alteration in intestinal permeability was greater in children with concurrent malnutrition and diarrhea.

Key words: *Diarrhea, Intestinal permeability, Lactulose-mannitol test.*

Acute and persistent diarrhea have been associated with increased intestinal permeability, and repeated episodes of diarrhea result in malnutrition in children [1-3]. To study the association between diarrhea, malnutrition and intestinal function we evaluated intestinal permeability in children admitted with acute gastroenteritis and controls with no gastrointestinal illness.

All children aged 6-59 months, hospitalized for management of acute gastroenteritis, without co-morbid conditions and with a weight >5 kg, were eligible for recruitment as cases. For each case, a child admitted at the same time for an illness other than severe infection or gastrointestinal disease was recruited. Written informed consent was obtained from parents and the study was approved by the institutional review board. Clinical management was according to regular protocols, with oral or intravenous rehydration as indicated. All children had anthropometric measurements recorded using calibrated weighing scales and infantometer and underwent the lactulose-mannitol test for intestinal permeability.

Malnutrition was defined as a weight for age Z score

below -2SD by WHO Anthro [4]. For the lactulose-mannitol test, after a 3-hour fast, children were given 2 mL/kg body weight of test solution containing 50mg/ml of mannitol and 250 mg/mL of lactulose. The entire volume of urine passed in the 5 hour period following the test solution was collected using adhesive urine bags in a container with 1 mL of chlorhexidine. The volume was measured and a 10 mL aliquot stored in a sterile 15 mL polypropylene tube at -20°C until testing. The ratio of urinary excretion of lactulose to mannitol was measured by high performance liquid chromatography (Ultra Fast Liquid Chromatography System, Shimadzu, Spinco Biotech, Chennai) with evaporative light scatter detection using melibiose as an internal standard. The values of lactulose mannitol in urine are expressed as the ratio % excretion of lactulose / % excretion of mannitol (or LM ratio) during the 5 hours, and a ratio of greater than or equal to 0.089 indicates increased permeability [5,6]. Fischer's exact test was used to compare proportions between groups

A total of 64 children were enrolled, with 34 cases and 30 controls. Ten children were excluded, five because of inadequate sample collection and five because of problems with determining the LM ratio. Thus, data from 54 children were analysed, with 26 cases and 28 controls. There were differences in age, weight and height in children enrolled as cases and controls, with controls being older (mean age of 28 months vs. 19 months), and consequently taller (mean height 84.7 cm vs. 79.1 cm) and heavier (10.7 kg vs. 8.8 kg), but there were no differences in the gender distribution (67% male vs. 73% male) or nutritional status (mean WAZ score -1.5 vs. -1.8). The LM test showed increased