

Assessment of the transfer of selected antenatal care mothers from primary and secondary care hospitals to tertiary care hospital in Batticaloa District.

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Abstract

Background: Safety and appropriateness of different birthplaces for pregnancies and antenatal care from skilled provider are always under discussion. There are many factors which influence the birthplace decision making. All the risk pregnancies need tertiary care services. This was carried out to assess the transfer of selected antenatal care mothers from primary and secondary care hospital to tertiary care hospital in Batticaloa District.

Materials and Methods: Hospital based descriptive cross-sectional study was carried out at Teaching Hospital Batticaloa during May 2019. All the Bed Head Tickets (BHBT) of mothers transferred from peripheral hospitals to maternity ward Teaching Hospital Batticaloa, since October 2018 to December 2018 were taken into study.

Results: Among 529 transferred mothers 429 (81.7%) delivered at THB. Mother being primi (15.2%, n = 80) and premature rupture of membrane (13.9%, n = 73) were the reasons for transfers of mothers. 319 (74.4%) mothers delivered by Normal vaginal delivery (NVD). Among those 425 born alive 24 (5.6%) had admission to special care baby unit for various reasons.

Conclusion: Majority of the transferred mothers had NVD and uncomplicated postpartum period, babies who needed SCBU care were very less. Therefore, these mothers could have been best managed at peripheral hospitals.

1. INTRODUCTION

Improving maternal health is the global health priority. In Sri Lanka Ninety-nine percent of mothers received antenatal care from a skilled provider and nearly 100 percent (99.5%) of births were delivered in a health facility and a skilled provider assisted during the delivery [1] [2]. There is always discussions and arguments regarding safety and appropriateness of different birth places for pregnancies [3]. The most commonly held belief is that hospital is the 'safest' place for all women to give birth, although this has never been

substantiated by robust research [4]. Evidence from the Birthplace in England prospective cohort study supports offering healthy women with low risk pregnancies a choice about where to have their baby [5]. Birthplace decision-making has considerable complexity surrounding it and can have far-reaching implications for women, their families and communities, as well as for health-care facility and providers. Women's beliefs and values regarding birth are often deeply held, and are influenced by a wide range of factors including their personal experiences of birth and those of their family and friends, the beliefs and values of their partner and sometimes those of their family and friends, and their knowledge-base [6].

All the high-risk pregnancy needs tertiary care services for delivery. For the tertiary care services, antenatal care mothers should be transferred from the primary and secondary care hospitals to tertiary care hospitals on correct time without delay. Transfer is one of the issues taken into consideration by those planning to give birth in a freestanding primary unit [7].

In Sri Lankan Health System, at least one tertiary care hospital available in a district. In Batticaloa district there is only one Tertiary care hospital – Teaching Hospital Batticaloa. And there are 4 secondary care hospitals and 18 primary care hospitals [8]. Average admission of gynaecology and obstetrics wards, and labour wards in 2018 is 1169 and 826 respectively. Average number of deliveries per month in 2018 is 596. Around 21% of labour ward admission were transferred from primary and secondary care hospitals (Statistics unit, Teaching Hospital, Batticaloa). All the high-risk pregnancies are transferred from these primary and secondary care hospitals to tertiary care hospital – Teaching Hospital Batticaloa (THB). Delay in transfers lead to maternal death, fetal death and fetal abnormalities. In other hand, unnecessary transfers to tertiary hospital led to increased workload to the tertiary care hospital and unnecessary expenses for the ANC mothers. On other side, cost per patient which is Sri Lankan government's spending for free at point of delivery is increasing with unnecessary transfer of the ANC mothers [9].

Objective of this study is to assess the transfer of selected antenatal care mothers from primary and secondary care hospital to tertiary care hospital in Batticaloa District.

2. MATERIALS AND METHODS

Hospital based descriptive cross-sectional study was carried out at Teaching Hospital Batticaloa during May 2019. This study was carried out retrospectively for 3 months (quarter). All the Bed Head Tickets (BHHT) of mothers transferred from peripheral hospitals to maternity ward Teaching Hospital Batticaloa, since October 2019 to December 2019 were taken into study. However, Females transferred for gynaecological disorders and ANC mother with POA < 36 weeks were excluded from study. Sampling is not done. All the BHHTs satisfying inclusion and exclusion criteria were included for this study. Secondary extraction form was used for this study with two sections (General information, Pregnancy related information). Data collection was done by the principal investigator and co-investigators at Teaching Hospital Batticaloa. Total admissions of gynaecology and obstetrics ward were collected using hospital health information management system (HHIMS). From the record room BHHT of transferred patients were sorted out. BHHT which were satisfying the inclusion and exclusion criteria were selected for this study.

Data collected was cleaned, coded and entered into and analyzed using Statistical Program for Social Sciences (SPSS) version 21 software computer program. Frequency distribution tables were constructed and cross-tabulations were done to examine the relationship between categorical variables. The Chi-square test was used to compare the differences between proportions. All levels of significance were set at $p < 0.05$.

Ethical clearance was obtained from Eastern University of Sri Lanka. Administrative permission was obtained from the Director Teaching Hospital, Batticaloa.

3. RESULTS

During the period of 4th quarter of 2019, only 525 mothers were transferred from peripheral hospitals to Teaching Hospital Batticaloa (THB) were included in the study as per the criteria. Among then 429 (81.7%) delivered at THB and rest of them discharged without delivery. Around 75% of transferred mothers were Tamil ($p = 0.58$).

Among the transferred mothers 73.7% ($n = 387$) were low risk age group (20 – 34 years) and among those 83.2% ($n = 322$) delivered their babies at THB. Also, Primi (48.8%, $n = 256$) and Multipara (47.6%, $n = 250$) are almost equal among the transferred pregnant mothers.

There is no significant association between delivery at THB among transferred mothers and age, Gravida, living children or Race (table 1).

Table - 1: Distribution of Socio-demographic characteristics of transferred mothers

Description	N (%)	Delivered		Sig.
		Yes	No	
Age group				
< 19 years	63 (12.0)	49 (11.4)	14 (14.6)	P = 0.33
20 – 34 years	387 (73.7)	322 (83.2)	65 (67.7)	
More than 35	75 (14.3)	58 (13.5)	17 (17.7)	
Race				
Tamil	393 (74.9)	319 (74.4)	74 (77.1)	P = 0.58
Muslim	132 (25.1)	110 (25.6)	22 (22.9)	
Gravida				
Primi	256 (48.8)	215 (50.1)	41 (42.7)	P = 0.36
Multipara (2 – 4)	250 (47.6)	198 (46.2)	52 (24.2)	
Grandmultipara	19 (3.6)	16 (3.7)	3 (3.1)	
Living Children				
0	276 (56.2)	232 (54.1)	44 (45.8)	P = 0.69
1	152 (29.0)	118 (27.5)	34 (35.4)	
2	55 (10.5)	45 (10.5)	10 (10.4)	

3	30 (5.7)	24 (5.6)	6 (6.3)
4	8 (1.5)	7 (1.6)	1 (1.0)
5	4 (0.8)	3 (0.7)	1 (1.0)

Table - 2: Distribution mode of delivery among transferred mothers

Parity	NVD n (%)	Instrumental Delivery n (%)	LSCS n (%)	Total n (%)	Sig.
Primi	158 (49.5)	6 (66.7)	51 (50.5)	215 (50.1)	p = 0.99
Multigravida (2 – 4)	150 (47.0)	3 (33.3)	45 (44.6)	198 (46.2)	
Grandmultipara	11 (3.5)	0 (0.0)	5 (5.0)	16 (3.7)	
	319 (100.0) (74.4)	9 (100.0) (2.1)	101 (100.0) (23.5)	429 (100.0)	

NVD – Normal Vaginal Delivery, LSCS – Lower Segment Caesarian Section

Overall, 319 (74.4%) mothers delivered by Normal vaginal delivery (NVD), 101 (23.5%) delivered by Lower segmental caesarian section (LSCS) and only 9 (2.1%) delivered by instrumental delivery. However, there is no significant association between Gravida and mode of delivery (p = 0.99).

Table - 3: Distribution of Outcome of the delivered mothers and babies among delivered mothers

Description	Primi	Multipara	Grand multipara	Total	Sig,
Outcome of babies					
Alive	213 (99.1)	196 (99.0)	16 (100.0)	425 (99.1)	P = 0.82
IUD/Still birth	2 (0.9)	2 (0.4)	0 (0.0)	4 (0.9)	
SBCU admission					
Yes	9 (4.2)	14 (7.1)	1 (6.3)	24 (5.6)	P = 0.44
No	206 (95.8)	184 (92.9)	15 (93.8)	405 (94.4)	
Outcome of the delivered mother					
Normal	211 (98.1)	195 (98.5)	16 (100.0)	422 (98.4)	P = 0.84
PPH	4 (1.9)	3 (1.5)	0 (0.0)	7 (1.6)	

SBCU – Special Baby Care Unit

Among the delivered mothers 7 (1.6%) had postpartum hemorrhage. Moreover, 425 newborns were alive and only 4 (0.9%) were not alive at birth (IUD/Still birth). Also, among those 425 born alive 24 (5.6%) had admission to special baby care unit for various reasons.

Table - 4: Distribution of reasons for transfers among transferred mothers

Description	N (%)	Delivered	
		Yes	No
Primi	80 (15.2)	66 (15.4)	14 (14.6)
PROM	73 (13.9)	69 (16.1)	4 (4.2)
Past date	41 (7.8)	37 (8.6)	4 (4.2)
Teenage pregnancy	31 (5.9)	27 (6.3)	4 (4.2)
Past section	31 (5.9)	23 (5.4)	8 (8.3)
Other medical problem	30 (5.7)	13 (3.0)	17 (17.7)
Prolong first stage of labour	26 (5.0)	26 (6.1)	0 (0.0)
Gestational Diabetes Mellitus (GDM)	25 (4.8)	16 (3.7)	9 (9.4)
Pregnancy Induced Hypertension (PIH)	20 (3.8)	17 (4.0)	3 (3.1)
Fetal distress	19 (3.6)	16 (3.7)	3 (3.1)
Breech presentation	18 (3.4)	17 (4.0)	1 (1.0)
Low risk pregnancy for confinement*	17 (3.2)	15 (3.5)	2 (2.1)
Fetal movement reduced	14 (2.7)	9 (2.1)	5 (5.2)
Grant multipara	10 (1.9)	8 (1.9)	2 (2.1)
Other problem in previous pregnancy	10 (1.9)	10 (2.3)	0 (0.0)
Large baby	9 (1.7)	8 (1.9)	1 (1.0)
Intrauterine growth retardation (IUGR)	9 (1.7)	6 (1.4)	3 (3.1)
Unfavorable cervix	8 (1.5)	5 (1.2)	3 (3.1)

Short stature of mother	7 (1.3)	6 (1.4)	1 (1.0)
Maternal fever & other infectious diseases	6 (1.1)	2 (0.5)	4 (4.2)
Anaemia	6 (1.1)	4 (0.9)	2 (2.1)
Planned for induction of labour	6 (1.1)	6 (1.4)	0 (0.0)
RH Negative blood group	5 (1.0)	4 (0.9)	1 (1.0)
Elderly mother	5 (1.0)	3 (0.7)	2 (2.1)
Meconium-stained liquor	4 (0.8)	4 (0.9)	0 (0.0)
Placenta previa	4 (0.8)	2 (0.5)	2 (2.1)
Preeclampsia	3 (0.6)	2 (0.5)	1 (1.0)
Primary subfertility	3 (0.6)	3 (0.7)	0 (0.0)
Twin pregnancy	2 (0.4)	2 (0.5)	0 (0.0)
Low body mass index (BMI)	2 (0.4)	2 (0.5)	0 (0.0)
Polyhydramnios	1 (0.2)	1 (0.2)	0 (0.0)
Total	525 (100.0)	429 (100.0)	96 (100.0)

Overall, mother being primi (15.2%, n = 80) and premature rupture of membrane (13.9%, n = 73) were the reasons for transfers of mothers. However, there are many reasons for transfers such as past date, teenage pregnancy, GDM, PIH, other medical problems, past section, prolog first stage of labor, breech presentation, fetal distress, reduced fetal movements, grand multipara and low risk pregnancy for confinement*(table 4).

Table - 5: Distribution of Time and mode of delivery among delivered mothers

Time since admission	NVD	Instrumental delivery	LSCS	Total	Sig
Less than 6 hours					
Primi	70 (46.4)	3 (50.0)	25 (52.1)	98 (47.8)	P = 0.91
Multipara	75 (49.7)	3 (50.0)	22 (45.2)	100 (48.8)	
Grandmultipara	6 (4.0)	0 (0.0)	1 (2.1)	7 (3.4)	
Subtotal¹	151 (48.1)	6 (66.7)	48 (7.5)	205 (100.0)	
6 – 12 hours					
Primi	27 (45.8)	0 (0.0)	11 (47.8)	38 (46.3)	P = 0.91
Multipara	28 (47.5)	0 (0.0)	11 (47.8)	39 (47.6)	
Grandmultipara	4 (6.8)	0 (0.0)	1 (4.3)	5 (6.1)	
Subtotal²	59 (18.8)	0 (0.0)	23 (22.8)	82 (100.0)	

12 – 18 hours

Primi	27 (60.0)	0 (0.0)	6 (40.0)	33 (55.0)	P = 0.03
Multipara	18 (40.0)	0 (0.0)	7 (46.7)	25 (41.7)	
Grandmultipara	0 (0.0)	0 (0.0)	2 (13.3)	2 (3.3)	
Subtotal³	40 (12.7)	0 (0.0)	15 (14.8)	60 (100.0)	

18 – 24 hours

Primi	34 (53.1)	3 (100.0)	9 (60.0)	46 (56.1)	P = 0.37
Multipara	29 (45.3)	0 (0.0)	5 (33.3)	34 (41.5)	
Grandmultipara	1 (1.6)	0 (0.0)	1 (6.7)	2 (2.4)	
Subtotal⁴	64 (20.4)	3 (33.3)	15 (14.8)	82 (100.0)	

Grand total^{1,2,3,4}	314 (100.0)	9 (100.0)	101 (100.0)	429 (100.0)	
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Among the delivered mothers 205 (47.8%) delivered within 6 hours of admission to THB and 151 (48.1%) delivered by NVD. Next 82 (19.1%) delivered between 6 to 12 hours, 60 (14%) delivered between 12 to 18 hours and 82 (19.1%) delivered by 24 hours from the admission.

4. DISCUSSION

Unforeseen complications of pregnancies necessitate transfer of pregnant mother to hospitals with facilities to handle it [10]. This study revealed among the mothers transferred 387 (73.1%) are between 20 to 34 years. 14.3% of them are above 35 years.

Overall, 101 (23.5%) mothers had delivery by lower segment caesarean section among transferred to THB. Others delivered vaginally. And also, in the study done in south Australia 20.6% of mothers had delivery by Caesarean section [11].

Present study revealed 425 (99.1%) mothers delivered babies alive and only 4 (0.9%) were IUD/Still birth. However, in the study conducted in Zimbabwe revealed 160 (78.43%) babies were alive and 46 (21.56%) were not alive. Moreover, only 24 (5.6%) babies were admitted to special care baby unit (SCBU) and no one admitted to intensive care unit (ICU). In the Zimbabwe study, 11 (5.4%) babies admitted to ICU [12].

In this present study mother being primi is the most frequent reason for transfer and premature rupture of membrane (PROM). In the Australian study and Tunisian study PROM is the most frequent reason. Also, fetal distress was the second commonest was in Tunisian study [13] [14]. In another study in Australia preterm labour, premature preterm rupture of membranes, antepartum haemorrhage and placental disorders were the reasons for transfer [11].

Among the transferred mothers 81.7% of mothers delivered their babies by 24 hours of transfer to Teaching Hospital Batticaloa. Rest of the pregnant females discharged from the hospital without delivering on this admission. In the study conducted in Australia Queensland, 43% of the mothers delivered within 24 hours and 23% were discharged or delivered after 7 days [13].

5. CONCLUSION

Majority of the transferred mothers had normal vaginal delivery and uneventful postpartum. Also most of the babies are managed in normal postnatal ward and only few had special baby care unit admission. Therefore, most of the mothers and babies did not need specialist care. Therefore, they could have been managed at peripheral hospitals.

6. RECOMMENDATION

It is recommended to conduct special training to staff involved in labour care in the primary and secondary care hospitals to enhance intrapartum care and detect complications that need specialized care to avoid unnecessary transfers. Further, system of communication has to be improved between peripheral hospital staff and specialist tertiary care hospitals prior to transfer of needy mothers.

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