Primary care follow-up of recent mothers submitted to cesarean section and their newborns in reference service

Seguimento em atenção primária de puérperas submetidas à cesariana e seus recém-nascidos de serviço de referência

Roberta Maia de Castro Romanelli1, Léni Márcia Anchieta2, Maria Cândida Ferrarez Bouzada2, Regina Amélia Lopes Pessoa de Aguiar2, Henrique Vitor Leite2, Vanessa Trindade Clemente2, Keyla Christy Christie Mendes S. Cunha2, Klaus Zamuncio Protli2, Letícia Maria de Oliveira Aleixo Carvalho2, Bruna Barbosa Coimbra2, Stella D’Ávila de Souza2, André Tunes de Paula2, Lucas Vieira Rodrigues2, Lúcia Maria Horta Figueiredo Goulart2

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ABSTRACT

Objective: To investigate the following up of parturients undergoing cesarean delivery and their newborns (RN), emphasizing the achievement of health care actions in primary health care. Methods: follow-up observational study on recent mothers and their RNs after cesarean delivery at the General Hospital at the Federal University of Minas Gerais, performed from March of 2010 to March of 2011. The information was obtained through telephone contact with the recent mothers and analyzed in the Statistical Package for Social Sciences software. The study was approved by the Research Ethics Committee of the Institution. Results: 500 (65.6%) out of 762 women undergoing Cesarean delivery were contacted, 126 (25.2%) were assisted in Basic Health Units (UBS) until 30 days postpartum and 34 (6.8%) had notified surgical wound infection. Post-discharge follow-up information was obtained for 456 RNs, excluding 21 deaths or stillbirths and 23 children who remained hospitalized. The recent mothers reported the following health actions for their children: 327 (71.7%) with consultation until 30 days postpartum, 439 (96.3%) with anti-hepatitis B vaccination, 428 (93.9%) with BCG vaccination, 450 (98.7%) with “foot test”, and 147 (32.2%) with hearing screening. There was no statistical difference in maternal and child health assistance when the post-cesarean surgical wound infection was considered. Conclusions: a low percentage of women was assisted in the UBSs; the majority of RNs had access to health actions and less adherence to the hearing screening.

Key words: Infant, newborn; Cesarean section; Maternal-Child Health Services; Post-operative Care; Primary Health Care.

RESUMO

Objetivo: investigar o seguimento de parturientes submetidas à cesariana e seus recém-nascidos (RN), ressaltando a realização de ações de saúde em atenção primária. Métodos: estudo observacional de seguimento de puérperas e seus RNs, após parto cesáreo no Hospital das Clínicas da Universidade Federal de Minas Gerais, realizado de março de 2010 a março de 2011. As informações foram obtidas por meio de contato telefônico com as puérperas e analisadas no Statistical Package for Social Sciences. O estudo foi aprovado pelo Comitê de Ética em Pesquisa da instituição. Resultados: foram contatadas 500 (65,6%) das 762 mulheres submetidas a parto cesáreo, 126 (25,2%) assistidas em Basic Health Units (UBS) até 30 dias pós-parto e 34 (6,8%) tiveram infecção de ferida cirúrgica notificada. Oteve-se informação sobre o seguimento pós-alta de 456 RNs, excluindo-se 21 óbitos ou natalimortos e 23 crianças que permaneciam internadas. As puérperas informaram as seguintes ações de saúde para seus filhos: 327 (71,7%) com

1 MD. Post-doctorate degree. Professor in the Pediatrics Department at the Medical School of the Federal University of Minas Gerais – UFMG. Belo Horizonte, MG – Brazil.
2 MD. PhD. Professor in the Pediatrics Department at the Medical School from UFMG. Belo Horizonte, MG – Brazil.
3 MD. PhD. Professor in the Department of Gynecology and Obstetrics at the Medical School from UFMG. Belo Horizonte, MG – Brazil.
4 MD. Post-doctorate degree. Department of Complementary Propaedeutic at the Medical School from UFMG. Belo Horizonte, MG – Brazil.
5 Medical School student at the Medical School from UFMG. Belo Horizonte, MG – Brazil.

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Institution:
Medical School/General Hospital – Federal University of Minas Gerais
Belo Horizonte, MG – Brazil

Corresponding Author:
Roberta Maia de Castro Romanelli
E-mail: rmcrromanelli@ig.com.br
The objective of this study was to evaluate the clinical follow-up and assistance in primary care services of puerperae who underwent cesarean section, and their NBs, in a reference university hospital, including the evaluation of preventive health actions recommended by the Ministry of Health.

METHODS

This was an observational prospective study for the follow-up of puerperae and their newborns after cesarean section delivery carried out at the General Hospital of the Federal University of Minas Gerais (HC/UFMG) and tertiary reference for healthcare services in the city of Belo Horizonte and State of Minas Gerais, from March 2010 to March 2011.

Because the hospital assists a high-risk population, the follow-up of pregnant women undergoing cesarean section is performed as part of an active surveillance of 30 days post-surgical postpartum mandatory care according to the technical standard based on the National Healthcare Safety Network. In addition, information about the postpartum care follow-up in the basic health units (UBS) was collected with information about NBs to evaluate their insertion in the UBS.

All patients who underwent a cesarean section childbirth in the reference maternity and their newborns followed by active surveillance were included. The exclusion criteria were not agreeing in participating in the study or having a dead NBs or NBs remaining at the Progressive Care Neonatal Unit (UNCP) in the maternity. Follow-up was lost when telephone contact with those puerperae was not possible; information was obtained from 456 mother-child binomial for this comparative statistical analysis.

After discharge, telephone calls to obtain information after childbirth were performed by trained and supervised students in addition to active searches in medical charts. The follow-up was conducted with telephone calls at 15 and 30 days to identify information about the early and late puerperal period, respectively. Data collection included information about assistance at the UBSs, preventive recommended actions (vaccination, universal neonatal screening, and hearing screening), and main complications in puerperae and NBs.

The database was built in the Statistical Package for Social Sciences (SPSS) version 19.0. In the statistical analysis, frequencies and percentages for categorical variables were described as well as median...
and range of continuous variables. The comparative analysis considered the Chi-square test or Fisher’s exact test, with statistical significance if p<0.05.

This study was approved by the Ethics Committee in Research of the Federal University of Minas Gerais (ETIC 476/10).

RESULTS

Out of 2,604 deliveries during the studied period, 762 (29.3%) pregnant women were submitted to cesarean and 500 (65.6%) were contacted by phone after delivery (Figure 1). The length of hospital stay before discharge showed a median of three days (ranging from one to 29 days) (Figure 2).

Out of the 500 contacted puerperae, 27 (5.4%) received medical care after discharge within up to 15 days after delivery, and 126 (25.2%) were assisted within 30 days in UBSs. The other 347 women did not receive assistance during the follow-up period.

Out of the 500 cesarean section in which contact with patients was possible, six were twin births, with a total of 506 newborns. In five cases, newborns were stillborn, and 16 NBs died within 30 postpartum days (Figure 1).

Considering the 21 neonatal death and stillbirth cases, the median gestational age was 38 weeks (ranging from 28 to 41 weeks) and a median weight of 2.465 g (ranging from 440 to 4.015 g) (Figure 3).

The 16 NBs who remained in the unit died with the median of one day of life (ranging from 0 to 27 days) (Figure 4). The 13 deaths occurred in the first seven days of life and seven of them on the first day of life.

The coefficient of neonatal mortality among followed-up patients was 31.6 deaths per 1,000 live births (16 in 506 live births), with an early mortality coefficient of 25.7 per 1,000 and late mortality coefficient of 5.9 per 1,000 live births.

On the 30th postpartum day, 23 NBs remained hospitalized at the UNCP. Thus, considering the follow-up of 456 puerperae who were discharged with their children, 327 (71.7%) of them reported having taken their children to pediatric consultation. The median time for NB assistance in the UBSs was 11 days (ranging from two to 30 days).

Figure 1 - Flowchart of follow-up of puerperae who underwent caesarean section and their newborns General Hospital / UFMG, 2010-2011.
Primary care follow-up of recent mothers submitted to cesarean section and their newborns in reference service

At the HC/UFMG, hepatitis B and BCG vaccines besides conducting the universal neonatal screening; and one third of them (n=147; 32.2%) reported having performed the hearing screening (Table 1).

The main NBs complications reported by the contacted puerperae after discharge were jaundice in 129 (28.3%) and difficulties in breastfeeding in 45 (9.9%).

Out of the 500 contacted puerperae, 34 (6.8%) were diagnosed with IFC, identified during telephone contacts. The comparative analysis considered the 456 binomials followed-up after discharge, taking into consideration the presence or absence of maternal IFC, according to the NHSN criteria. No statistical difference was observed when considering puerperae assistance in UBSs (p=0.28), NBs assistance in UBSs (p=0.53), and complications diagnosed in NBs (p=0.81) (Table 2).

When the administration of hepatitis B and BCG vaccines, universal neonatal screening, and hearing screening were considered, no statistical difference was observed between the groups of mothers with and without IFC (p<0.001); some mothers did not remember about these public health actions. When the answer “I don’t know” was excluded from the analysis, there was no difference between the groups (Table 2).

### DISCUSSION

The HC/UFMG is a tertiary reference service for high-risk pregnant women for Belo Horizonte and other regions in the State of Minas Gerais, which makes the risk of maternal and fetal complications higher with increased likelihood of morbidity and mortality. The profile of the assisted population requires increased need for counter-reference and primary care assurance, which is the focus of this study.
The neonatal mortality coefficient observed in the studied population (31.9 per 1,000 live births) is considered high because according to the Millennium Development Goals, a childhood mortality rate below 17.9 per 1,000 live births is expected to be reached.\(^5\)\(^,\)\(^11\) Moreover, this study evaluated only the neonatal period in which the mortality rate is higher and corresponding to 60% to 70% of infant mortality in the country.\(^3\) In addition, the service assessed is a reference for high risk patients, including congenital malformations, which leads to increased number of deaths.

The rate observed in this study showed a higher proportion of deaths in the first days. The need to prevent these deaths in the period in which the higher infant mortality occurs, increasing since 1990;\(^12\) is highlighted with a focus on the prenatal diagnosis.

The performance of cesarean section in the cases of extreme prematurity is a protective factor for neonatal mortality;\(^13\)\(^,\)\(^14\) however, it increases the risk of death in the event of late preterm birth.\(^15\)

The cesarean rates have increased, particularly in countries with highly medicalized assistance models, noting that Brazil is among the countries with the highest rates recorded, reaching up to 48% of all childbirths.\(^16\) However, the studied population was assisted by the public health system, where fewer unnecessary interventions are performed, including cesarean sections in relation to private assistance as demonstrated in other Brazilian studies.\(^17\)\(^,\)\(^18\)

Furthermore, as for the counter-reference to primary care, it was noticed that only 25% of women received medical care in the first 30 postpartum days compared to 71.7% who cited having taken their NBs to consultations. However, they may have been assisted by other professional in the assigned health team. It is considered that women can prioritize their children’s assistance, although they should receive all guidelines for their own assistance during postpartum, including the evaluation of their health status and interaction with the NB; verification of complications; and guidance on breastfeeding and family planning. The revaluation of early postpartum is indicated within 10 days and late postpartum within 42 days.\(^1\)\(^,\)\(^2\) During telephone contacts, puerperae were encouraged to seek assistance and, when necessary, assistance was facilitated when leaving the hospital, guiding them to the emergency room in case of emergency and surgical wound revaluation or scheduling for family planning, with a structured flow after observation of this demand.

**Table 2** - Comparison between puerperae who underwent caesarean section, with and without surgical wound infections(IFC), and puerperae follow-up, NB follow up, and complications in the NB, General Hospital from UFMG, 2010-2011

<table>
<thead>
<tr>
<th></th>
<th>With IFC</th>
<th>Without IFC</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puerpera assisted in the UBS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>10</td>
<td>2.2</td>
<td>104</td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>4.4</td>
<td>322</td>
</tr>
<tr>
<td>NB assisted in the UBS</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>20</td>
<td>4.4</td>
<td>307</td>
</tr>
<tr>
<td>No</td>
<td>10</td>
<td>2.2</td>
<td>119</td>
</tr>
<tr>
<td>NB with complications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>13</td>
<td>2.9</td>
<td>194</td>
</tr>
<tr>
<td>No</td>
<td>17</td>
<td>3.7</td>
<td>232</td>
</tr>
<tr>
<td>NB vaccinated for Hepatitis B(^1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>26</td>
<td>5.7</td>
<td>413</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>0.2</td>
<td>13</td>
</tr>
<tr>
<td>NB vaccinated for BCG(^1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>26</td>
<td>5.7</td>
<td>402</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>0.2</td>
<td>22</td>
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<tr>
<td>Universal neonatal screening(^3)</td>
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<td></td>
<td></td>
</tr>
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<td>6.1</td>
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<tr>
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<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Hearing screening(^4)</td>
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<td></td>
<td></td>
</tr>
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<tr>
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<td>4.2</td>
<td>286</td>
</tr>
</tbody>
</table>

Answers as "I don’t know" were excluded: 3 excluded in 1; 5 excluded in 2; 3 excluded in 3; 4 excluded in 4.

\(^1\) Exact Fisher’s Test.
in the Neonatal Intensive Care Unit. During telephone contacts, the difficulty in scheduling an exam in the UBS was identified through the mothers’ reports. With this information, the Municipal Health Secretary was contacted and exam scheduling was facilitated.

Regarding clinical complications in NBs, jaundice was the most frequent and described by 28.3% contacted mothers, breastfeeding difficulty was the second problem reported by 9.9% mothers. These complications reflect the importance of the actions on the fifth day, which include evaluation of NB and mother with attention to jaundice and breastfeeding. Although the length of stay in the HC/UFMG for the mother-child binomial is 48 postpartum hours for the assessment of the minimum recommended criteria, the importance of reassessing jaundice is emphasized to prevent hyperbilirubinemia encephalopathy and breastfeeding to prevent early weaning with the identification of technical problems such as breast lesions or oral moniliasis. When children with complications had not yet been evaluated, mothers were guided to seek assistance and encouraged to breastfeed.

Another important aspect in the follow-up of women who had undergone cesarean delivery is the identification of puerperal infections, especially IFC, which must be monitored up to 30 postpartum days because it is a surgical procedure. When necessary, the identification of cases and hospital assistance was facilitated by the intervention and guidance of the student team responsible for telephone contacts and active searches of post-operative infections.

Mothers were grouped as with and without IFC in the comparative analysis. There was no significant association between IFC and assistance to mother and NB in the UBS in the first 30 days after delivery and with complications in the NB. Therefore, the puerpera care was not associated with IFC since access to care and assistance actions are universal and preventive.

When the health actions recommended to NBs were individually evaluated (vaccination against hepatitis B, BCG, universal neonatal screening, and hearing screening), mothers that could not give this information were identified, which leads to questions about the adequacy of the guidance provided or their understanding of the necessary guidance about NB follow-up. It should be noted that the approach only of patients submitted to cesarean sections could be a bias in this study. However, it is known that the medicalization of assistance has contributed to a high number of procedures, including high rates of cesarean section and, consequently, more maternal morbidity and mortality, including infections that should have compulsory surveillance and notification. Nevertheless, this maternal complication was not observed with the fulfilment of the basic health actions in NBs.

CONCLUSION

The appropriate mother-son follow-up between assistance levels allows identifying assistance demands to health and basic actions that improve reference and counter-reference services and, consequently, maternal and child assistance in the UBS.

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REFERENCES


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