Perineal protection methods: knowledge and use

Métodos de protección perineal: conocimiento y utilización
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ABSTRACT
Objective: To analyse the knowledge and use of perineal protection methods during the expulsive stage by health professionals involved in childbirth and whether they correspond to the World Health Organization’s recommendations. Method: This was a cross-sectional descriptive study aimed at health workers involved in births in Spain. Results: Fifty-seven professionals participated in the study: midwives (47%), gynaecologists (25%), nurse residents (14%) and resident physicians (14%) in obstetrics and gynaecology. The degree of knowledge and use of perineal protection methods differed according to the position held and was very limited among gynaecologists and resident physicians. The only method recognized by all positions was “hands on” (p = 0.05). “Hands off” (p = 0.002), “delayed pushing” (p = 0.0001) and “maternal posture” (p = 0.03) were only known to midwives and nurse residents. “Flexion technique” (p = 0.035) and “delayed pushing” (p = 0.011) were used effectively by midwives and nurse residents. “Episiotomy” was erroneously identified as a method to protect the perineum by gynaecologists and resident physicians (p = 0.003). Conclusion: The degree of knowledge and use of perineal protection methods by health care professionals does not correspond to the recommendations of the World Health Organization.

DESCRIPTORS
Parturition; Midwifery; Episiotomy; Perineum; Obstetric Nursing.
INTRODUCTION

Perineal trauma can be defined as “any damage to the perineum during birth that occurs spontaneously or intentionally through surgical incision (episiotomy)”(3,7). It is one of the most common traumas experienced by women during childbirth, even in normal birth, and affects 85% of women who deliver vaginally(1). It can cause problems in the short and long term, including “blood loss, need for suturing, perineal pain, difficulty moving and limitations in breastfeeding positions in the postnatal period. In the long term, pain can continue and affect urinary, intestinal and sexual functions. In addition, perineal trauma weakens the pelvic floor muscles(1) with corresponding consequences(8,2). If this trauma could be prevented, “postpartum care would be simplified and health spending would be reduced by reducing the need for drugs, sutures, treatments, possible surgical interventions and time of professionals in future consultations dedicated to helping women cope with the sequelae of trauma”(10). This is why “the prevention of perineal damage would benefit a large number of women”(11) and the health system itself and should be a primary objective of professionals involved in labour(3,3).

Since 1985, the World Health Organization (WHO) has promoted a humanistic model with the objective of promoting healthy labour and delivery(12). In this Declaration of Strength, the WHO spoke of the need to protect the perineum whenever possible(4–6), establishing that an episiotomy rate above 20% is not justified(8) and aiming to decrease this percentage to 10% of normal births in 1996(9). In Spain, the Ministry of Health and Consumer Affairs (2008), following the recommendations of the WHO, has also indicated the importance of improving training on perineal protection(3,7), and although the use of episiotomies has fortunately been reduced in recent years(9), we found an episiotomy rate of approximately 41.9% in 2010. In Area II of the Murcian Health Service at the Santa Lucia General Hospital (HGUSL, for its initials in Spanish), the evolution of the number of episiotomies per year was as follows: in 2011, an episiotomy rate of 37.30% was recorded; this value progressively decreased to 35.7%, 33.7% and 31.6% in 2012, 2013 and 2014, respectively, for a rate of 34.7% over the total period.

WHO publications in 1985, 1996 and 2003 and the “Normal Birth Initiative” of the Spanish Federation of Midwives Associations (FAME, 2007)(8), the Ministry of Health and Consumer Affairs (2008)(7) and the “Clinical Practice Guideline on normal birth care” (2010)(9) established that delivery care should be performed under the general concept that birth is a physiological process in which intervention should only take place to correct deviations from normality and in which it is essential to provide adequate perineal protection(3,4–7,9). The methods for perineal protection described by the evidence include “hands on”, also known as active perineal protection or Ritgen’s manoeuvre. This consists of using the dominant hand to apply pressure to the perineum while the other hand holds the infants head so that it comes out smoothly, followed by active management of the passage of the shoulders. Additionally, “hands off”, “hands poised” or expectant behaviour is described; unlike in the previous method, the hands are kept ready but do not intervene in the exit of the foetal head, and the following process is expected: the shoulders come out spontaneously, warm compresses or lubricants are applied, an appropriate maternal position is adopted during the expulsive stage, foetal head flexion is controlled, and pushing is managed adaptively according to the point of the expulsive stage(8–10).

There is another series of factors that can protect against or produce perineal trauma, but unlike the aforementioned methods, these are factors beyond the control of the health care professional assisting labour and therefore are not considered perineal protection methods and are not included in the present study. Such factors include maternal parity and prenatal perineal massage as elements that favour an intact perineum and nulliparity, foetal macrosomia and a prolonged expulsive stage as factors that can potentially cause perineal trauma(8).

Given the importance that the WHO(4–6) and the “Clinical Practice Guideline on normal birth care” (2010)(9) give to the need to train professionals involved in birth care on methods of perineal protection, the objective of this study is to perform an analysis of the knowledge of these professionals and their implementation of this knowledge during routine clinical practice to determine whether there is a need to establish training programmes on perineal protection methods at HGUSL.

METHOD

STUDY DESIGN

Quantitative, descriptive cross-sectional study.

LOCATION

The study was performed between February and April 2016 at the Gynaecology and Obstetrics Unit of the HGUSL (Cartagena, Area II, Murcian Health Service).

POPULATION

The population consisted of a total of 68 health professionals who attend births at HGUSL (Cartagena, Murcia): midwives, gynaecologists, nurse residents in obstetrics and gynaecology and resident physicians in obstetrics and gynaecology.

SELECTION CRITERIA

The inclusion criteria for the reference population were as follows: health professionals currently involved in birth care at HGUSL (Cartagena, Murcia), namely, midwives, gynaecologists, nurse residents in obstetrics and gynaecology and resident physicians in obstetrics and gynaecology, who agreed to participate in the study and signed the informed consent form.

The following were considered exclusion criteria: gynaecologists who did not attend births, professionals on sick
or maternity leave at the time of the study and professionals on leave of absence.

Of the 68 professionals who attended births at the study hospital, 57 participated in the study, representing 83% of the workforce.

**Data Collection**

The participants answered a series of questions that were developed ad hoc. The participants were asked for their sociodemographic (age) and employment data (occupation, years of professional experience and type of employment contract). Next, some questions were drafted from a qualitative perspective to determine whether the professionals knew the perineal protection methods based on the WHO recommendations and scientific evidence. The first question was “Do you know the different methods used for perineal protection during the expulsive stage?” This question was closed-ended (YES-NO). The second was “Can you name the methods you know?” This question was open-ended, and the professionals could cite all the methods they knew. The third question was “What methods do you usually use?” This question was open-ended. The fourth question was “Can you name the methods that are most effective for you?” This question was also open-ended. The fifth question was “Have you received specific training on perineal protection methods during your training or professional career?” This question was closed-ended (YES-NO). The sixth question was “If you answered ‘yes’ to the previous question, where did you receive the training?” The response options were university, residency and work. The seventh question was “Have you acquired training independently?” This question was closed-ended (YES-NO).

**Data Analysis and Processing**

After the information provided by the professionals was collected, it was analysed using SPSS 21.0 software. Descriptive statistics with frequency distributions and percentages were obtained for each of the variables.

The only quantitative variables were age and years of professional experience. The rest of the variables were qualitative; some were dichotomous (those referring to questions 2, 3, 4, 6 and occupation) and others were categorical (those referring to questions 2, 3, 4, 6 and occupation).

Questions about knowledge of perineal protection methods were entered into the statistical program SPSS 21.0 as follows: The 2nd, 3rd and 4th questions were entered into the program as “Known methods of perineal protection”, “Commonly used methods of perineal protection” and “Most effective methods of perineal protection”, respectively, with the response options being all the perineal protection methods established by the WHO and available scientific evidence.

The dependence or association between the qualitative variable “Occupation” and the responses to questions 2, 3 and 4 was addressed with contingency table analysis with Pearson’s chi-squared test complemented by residue analysis to determine the direction of dependence, considering a significance level of $\alpha = 0.05$ for all contrasts.

**Ethical Aspects**

The research was approved by the Research Ethics Committee of Health Area 2 of the Murcian Health Service and by the authorization of the Supervisor of Labour and Delivery and the Head of the Gynaecology and Obstetrics Service. The anonymity of the professionals who participated in the study was ensured at all times according to Organic Law 15/1999 of December 13 on the Protection of Personal Data.

**Results**

The sociodemographic and work data of the professionals are shown in Table 1.

When asked if they knew the methods for perineal protection during the expulsive stage, 77% answered yes, and 23% answered that they knew some, but not all of them. Despite the high proportion of professionals who claimed to have knowledge of these methods, a considerable percentage (32% of gynaecologists, 12% of nurse residents and 4% of midwives) did not answer the associated questions. There was a statistically significant difference among the different professionals ($p = 0.018$).

As shown in Table 2, knowledge of the “hands on” and “warm compress” methods was equitable among the different professionals.

| Table 1 – Sociodemographic and labour data of the study sample, February–April, 2016, Cartagena, Murcia, Spain. |
|-------------------------------------------------|------------------|-----------------|-----------------|------------------|
| STUDY POPULATION | MIDWIVES | GYNAECOLOGISTS | NR | RP |
| SAMPLE | 32 | 17 | 8 | 11 |
| AGE | 20–30 | 31–40 | 41–50 | 51–63 |
| N | 15 | 22 | 8 | 12 |
| % | 26.6 | 38.7 | 14.2 | 21.2 |
| YEARS OF PROFESSIONAL EXPERIENCE | 0–10 | 11–20 | 21–30 | 31–40 |
| N | 26 | 18 | 7 | 5 |
| % | 45.9 | 31.8 | 12.4 | 8.9 |
| TYPE OF CONTRACT | UNDEFINED | N | 30 | TEMPORARY | N | 27 |
| % | 52.6 | 5 | 47.4 |

NR: Nurse resident. RP: Resident physician.
professionals; for all other methods, there were differences according to occupation: the “hands off” and “delayed pushing” methods were only known to midwives and nurse residents, and knowledge of “maternal posture” can be considered exclusive to midwives as it was curiously unknown to nurse residents and resident physicians.

The dependence between the variables “occupation” and “known perineal protection methods” was analysed using the Pearson chi-square test (see Table 3). There were significant differences between the different professionals only in the methods “hands off” (p = 0.002), “maternal posture” (p = 0.030) and “delayed pushing” (p = 0.0001). The “hands off” method was known to the midwives and nurse residents, but the gynaecologists and resident physicians did not recognize it as a method for protecting the perineum. “Maternal posture” and “delayed pushing” were only considered perineal protection methods by the midwives.

Regarding the results of the third question, Table 2 shows that the only method used by most of the professionals was the “hands on” method. The least used methods were “hands off” and “maternal posture”, which were used only by midwives. We confirmed the association between the variables “occupation” and “commonly used methods of perineal protection” using the Pearson chi-square test (Table 3). The association of the variable “occupation” and the methods “maternal posture” (p = 0.032), “delayed pushing” (p = 0.0001) and “hands on” (p = 0.05) continued to be significant. Based on the analysis, the latter method was not sufficiently used by midwives, while “maternal posture” was exclusively used by them, and “delayed pushing” was not used by gynaecologists and resident physicians.

Regarding the fourth question, the “hands on” was the one that the professionals considered most effective; there was a considerable decrease in the use of the other methods, and many were unmentioned by certain occupations. Significant associations were obtained by confirming the dependence of the variables “occupation” and “most effective methods of perineal protection” (see Table 3). These results also showed an association of the methods “flexion technique” (p = 0.035) and “delayed pushing” (p = 0.011) with occupation, as both methods were statistically unknown to gynaecologists and resident physicians, although they were mentioned by midwives and nurse residents.

Because the question was open-ended, some methods were mentioned that either have no evidence base or are even considered harmful to the perineum. Midwives did not cite any incorrect methods, but there was a small percentage of nurse residents (12.5%) and gynaecologists (14.2%), as well as a high proportion of resident physicians (50%), who considered episiotomy a protective factor. The incorrect naming of perineal massage during the expulsive stage as a protective technique was unique to resident physicians (25%). We found an association between occupation with incorrect knowledge of perineal protection methods for “episiotomy” (p = 0.003) and “perineal massage” (p = 0.010).

Regarding the fifth, sixth and seventh questions, the following results were obtained: 25% of the respondents had not received training, and for the 75% who had received training, 61% had acquired it independently.
DISCUSSION

The main perineal protection methods that are supported by scientific evidence and were analysed in the present study were “hands on”, “hands off”, the application of warm compresses or lubricating substances to the perineum, maternal posture during the expulsive stage, manual control of foetal head flexion (flexion technique) and delayed pushing.

Regarding the position of the hands, the method that has been in use the longest and is best regarded and most widely used, as we verified in this study, is the “hands on” method, also known as active perineal protection or Ritgen’s manoeuvre. The method is based on the fact that pressure exerted on the foetal head prevents the ability to extend and push from the pubic arch to the perineum, which can increase the risk of perineal laceration\(^\text{[1]}\). Meanwhile, the use of the “hands off” method is based on the fact that the high strain on the perineum during delivery makes it thinner and more vulnerable, and added pressure from the hand could cause ischaemia and facilitate tearing\(^\text{[2]}\). Although the NICE Guidelines recommend the use of either of these two techniques to promote spontaneous delivery\(^\text{[3]}\), there are different criteria in the results of each method. An RCT (randomised controlled trial)\(^\text{[4]}\) that compared the effects of each technique observed that after the “hands on” method, labouring women experienced less pain both at 24 hours and 10 days after delivery, as well as a lower rate of manual removal of the placenta. However, the “hands off” method had a lower episiotomy rate (“hands on”: 17.9% vs “hands off”: 10.1%)\(^\text{[5–12]}\). Another comparative study\(^\text{[13]}\) also concluded that there was a difference in the proportion of third-degree tears between the two methods, with a higher proportion occurring when the “hands on” method was used (“hands on”: 2.7% vs “hands off”: 0.9%). On the other hand, both protection methods are associated with a decreased incidence of perineal trauma\(^\text{[14]}\); the overall rate is similar for both methods\(^\text{[5]}\), specifically in terms of the rates of first- and second-degree tears\(^\text{[12]}\). The evidence leans towards recommending the “hands off” method because it results in lower rates of perineal trauma than the “hands on” method\(^\text{[15]}\). In the present study, we observed that in terms of both knowledge and use by professionals, exactly the opposite occurred: the participants were more familiar with and more likely to use the “hands on” method, and “hands off” was unknown by a large percentage of professionals.

Along with the “hands on” method, the application of warm compresses was one of the most highly-regarded and most frequently used methods by the different occupations included in this study. The placement of warm compresses during the second stage of labour can to some degree prevent both the occurrence of spontaneous tears in multiparous women without episiotomy and the need for episiotomy in nulliparous women\(^\text{[16]}\), as well as the risk of third- and fourth-degree tears\(^\text{[13,16]}\). Pain reduction during labour and the first 3 days postpartum is significant in women who receive warm compresses versus those who do not (59% vs. 82%, respectively), and compress use is associated with a reduction in the risk of urinary incontinence during the first three months\(^\text{[16]}\). However, this method does not reduce the rate of perineal sutures\(^\text{[16]}\). Unlike other previous articles, one study\(^\text{[2]}\) states that the only benefits of warm compress use are vasodilation and increased blood supply, which allows stretching, muscle relaxation and altered pain perception but does not reduce perineal lesions. Even so, that study, along with other studies, maintains that it is a simple and low-cost practice that should be included in the second stage of labour\(^\text{[2,7,13,16]}\).

Maternal posture during the expulsive stage was the method most overlooked by the professionals in this study, yet it is one of the methods with the most supportive evidence. However, in the results of this study, we observed that the small percentage of professionals who were aware of this method were trained between 2000 and 2010, a period that coincided with the publication of most of the studies on this method\(^\text{[2,8,12]}\). Multiple studies have analysed different positions and their variations and have concluded that the least harmful positions for the perineum during the expulsive stage are the lateral position or vertical positions with support\(^\text{[5–8,9]}\).

Vertical or lateral positions are associated with a shorter time of expulsion (which favours a significant reduction in episiotomy), less acute pain during the second stage and a reduction in abnormal foetal heart rate patterns\(^\text{[9,17–18]}\) compared to the classic supine or lithotomy position. The lateral position is associated with a lower number of second degree perineal tears than the vertical position\(^\text{[17]}\), in addition to having the lowest incidence of spontaneous tears in nulliparous patients\(^\text{[9]}\); therefore, it is the posture that is most conducive to maintaining an intact perineum (66.6%)\(^\text{[9]}\).

The vertical position with support, despite its association with a higher percentage of second-degree tears than the lateral position, provides multiple benefits to the woman in labour\(^\text{[8,17–18]}\). Due to the effect of gravity, the following results are achieved: “a decrease in the risks of aortocaval compression and, therefore, the consequent improvement of acid–base results in newborns. It also enables stronger and more efficient uterine contractions and better accommodation of the foetus for its passage through the pelvis due to the increase in pelvic diameters”\(^\text{[19]}\). Another very important fact is that this position allows greater comfort and autonomy for the mother, which allows the necessary synchronization with the midwife so that the delivery of the foetal head occurs slowly, smoothly and between contractions (which constitutes another protective element, as discussed below)\(^\text{[2]}\). All of this translates into greater maternal satisfaction\(^\text{[18]}\); 85% of women who have given birth in this position want to repeat it in a subsequent delivery. Regarding this position, it is important to note that among its variations, the least recommended is the squatting position for nulliparous women\(^\text{[9]}\).

The WHO, the clinical guidelines of the Ministry of Health and Social Policy of 2010 and the FAME establish that childbirth in the lithotomy position or supine position should be avoided\(^\text{[4–6,8–9]}\), additionally, they indicate that midwives should be experts in assisting births in different positions and in advising women on the position that best suits them and above all that each woman should be able to
freely decide which position to adopt during childbirth. Another protective element for the perineum during the expulsive stage consists of slowing down the exit of the foetal scalp by controlling head flexion and pushing. Regarding the flexion technique, it was known by all of the occupations included in this study but was not considered effective by gynaecologists and resident physicians, although it is recommended because it considerably reduces the number of anal sphincter tears.

Regarding maternal pushing, there is ample evidence that the most physiological management of the expulsive stage is to allow the woman to be guided by her own need to push. Spontaneous pushing has been shown to be more beneficial than directed pushing: it results in less perineal trauma and a lower rate of incontinence and pelvic organ prolapse in the future. However, there is a point in the expulsive stage at which it is necessary to control or delay pushing, as we have mentioned in this study: when foetal presentation is at Hodge 4 or crowning, pushing should be controlled because this is when the pelvic floor is most susceptible to injury as the foetal presentation reaches the perineum and distends it. Such control consists of instructing the woman not to push, although it is the moment at which she feels the greatest need to push. This delay slows the exit of the foetal scalp, which, along with the previously mentioned method, favours a decrease in anal sphincter tears. It also allows the expulsion of the head between contractions and not during them, which has proven to be a protective factor in both primiparous and multiparous women. In this study, we confirmed that this method was only known and used by a low percentage of midwives and a high percentage of nurse residents and was completely unknown among the remaining occupations.

The application of lubricating substances to the perineum was also known and used by a very small percentage of the professionals in this study. This method serves to facilitate perineal distension and expulsion of the foetal head, reducing the risk of trauma.

As a result of this work, we were able to verify that even in the present day, despite the recommendations of the WHO, the FAME and the CPG and the available scientific evidence, a large number of professionals still mistakenly consider episiotomy and perineal massage to be protective of the perineum during the expulsive period.

The use of episiotomy has been justified by an alleged reduction in the risk of perineal tears, pelvic floor dysfunction and urinary and faecal incontinence. It has also been associated with a shortening of the expulsive stage for the benefit of the foetus and with facilitating a greater number of spontaneous births. However, evidence indicates that it causes more damage than benefits: Regarding the supposed reduction in perineal tears, research has proven that episiotomy is only effective for avoiding anterior perineal trauma, which has minimal morbidity. However, it increases perineal and vaginal trauma (especially third- and fourth-degree tears) as well as the length and depth of posterior perineal trauma. It also increases the need for repair and healing complications. Pelvic floor dysfunction does not prevent muscle weakness or sequelae, such as prolapse. It also does not provide the supposed benefits of preventing urinary and faecal incontinence and causes anal sphincter dysfunction, increasing the risk by as much as two times.

In addition to the above complications, episiotomy is also related to increased blood loss in women; increased risk of infection, dehiscence and necrotizing fasciitis; increased pain at discharge; dyspareunia; delayed initiation of sexual intercourse; and psychological consequences, such as depression, posttraumatic stress syndrome and anxiety. Furthermore, it does not protect the foetus from intrapartum asphyxia.

Another situation that justified the use of episiotomy was the avoidance of new tears in women who had previously experienced severe perineal trauma, such as third- or fourth-degree tears. However, the CPG and the NICE Guide establish that episiotomy should not be used in this situation as numerous studies show that, on the one hand, episiotomy has greater morbidity than a tear and, on the other hand, the incidence of the recurrent severe perineal trauma is similar to the incidence of first-time severe perineal trauma in women and that episiotomy increases the risk of both recurrent tear and initial trauma. For all these reasons, its use should be limited to the following indications: suspicion of foetal distress, complicated vaginal delivery, female genitalia mutilation scars and poorly healed third- and fourth-degree tears.

Another method that was mistakenly considered protective by the resident physicians in this study was perineal massage during the expulsive stage. Although perineal massage during pregnancy is beneficial because it helps reduce perineal trauma during the expulsive stage and continuous subsequent pain, it should not be performed during delivery since its use does not show any advantage: it does not significantly increase the rate of intact perineum or reduce the risk of vaginal pain at 3 days, 10 days and 3 months, dyspareunia or the non-resumption of sexual relations.

**CONCLUSION**

The degree of knowledge and use of perineal protection methods during the expulsive stage does not correspond to the recommendations of the WHO (1985, 1996, 2003), the FAME (2007), the Ministry of Health and Consumer Affairs (2008) and the “Clinical Practice Guideline on Normal Birth Care” (2010). Differences are observed between occupations in terms of the level of knowledge of perineal protection, which is considerably limited for gynaecologists, somewhat less limited among resident physicians, and highest among midwives and nurse residents. Future professionals (resi dent physicians and nurse residents) are being trained in an environment that is not fully in accordance with the established guidelines on perineal protection. Finally, although there are differences by occupation in terms of the need for training and the mistaken perception that their knowledge is sufficient, there is a need for training on perineal protection.
RESUMEN

Objetivo: Analizar grado de conocimiento y utilización de los métodos de protección perineal durante el período expulsivo de los profesionales sanitarios implicados en el parto y si se corresponde con las recomendaciones de la Organización Mundial de la Salud. Método: Estudio descriptivo de corte transversal dirigido a sanitarios que asisten partos en España. Resultados: Participaron en el estudio 57 profesionales: matronas (47%), ginecólogos (25%), Enfermero Interno Residente (EIR) (14%) y Médico Interno Residente (MIR) (14%) en Obstetricia y Ginecología. Hubo diferencias respecto al grado de conocimiento y utilización según el cargo desempeñado, siendo muy limitado para ginecólogos y MIR. Los únicos métodos reconocidos por todos los cargos fueron “Hands On” (p=0.05), “Hands off” (p=0.002), “Control de pujos” (p=0.0001) y “Posturas en el período expulsivo” (0.03) sólo son conocidos por las matronas y EIR. “Control de deflexión de la cabeza fetal” (0.035) y el “Control de pujos” (p=0.011) son efectivos para matronas y EIR. La “Episiotomía” se identificó erróneamente como protector del perine por ginecólogos y MIR (p=0.003). Conclusión: El grado de conocimiento y uso de los métodos de protección del perine de los profesionales no se corresponde con las recomendaciones de la Organización Mundial de la Salud.

DESCRITORES
Parto; Partería; Episiotomía; Períneo; Enfermería Obstétrica.

Referencias


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