J Gynecol Obstet Hum Reprod 47 (2018) 57–62

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Original Article

Labour induction practices in France: A population-based declarative survey in 94 maternity units

P. Blanc-Petitjean [a,b,*], M. Salomé [c], C. Dupont [d], C. Crenn-Hebert [b], A. Gaudineau [e], F. Perrotte [f], P. Raynal [g], E. Clouqueur [h], G. Beucher [i], B. Carbonne [j], F. Goffinet [a,k], C. Le Ray [a,k]

[a] *Inserm UMR 1153, obstetrical, perinatal and pediatric epidemiology research team (EPOPé), centre for epidemiology and statistics Sorbonne Paris Cité (CRESS), DHU risks in pregnancy, Paris Descartes university, 75014 Paris, France*
[b] *Assistance Publique-Hôpitaux de Paris, Louis-Mourier hospital, Department of obstetrics and gynecology, Louis-Mourier hospital, hôpitaux universitaires Paris Nord Val-de-Seine, AP–HP, DHU risks in pregnancy, Paris Diderot university, 92700 Colombes, France*
[c] *URC-CIC Paris Descartes Necker/Cochin, AP–HP, Cochin hospital, 75014 Paris, France*
[d] *Réseau périnatal Aurore, hôpital de la Croix-Rousse, université Lyon 1, 69004 Lyon, France*
[e] *Department of obstetrics and gynecology, Strasbourg teaching hospital, 67200 Strasbourg, France*
[f] *Réseau de santé périnatal Parisien, 75010 Paris, France*
[g] *Department of obstetrics and gynecology, André-Mignot hospital, centre hospitalier de Versailles, 78150 Le Chesnay, France*
[h] *Pôle Femme–Mère-Nouveau-né, clinique d'obstétrique, Jeanne-de-Flandre hospital, university of Lille Nord de France, 59000 Lille, France*
[i] *Department of obstetrics, gynecology and reproductive medicine, CHU de Caen, 14033 Caen, France*
[j] *Department of obstetrics and gynecology, Princess Grace hospital, 98012 Monaco*
[k] *Assistance Publique-Hôpitaux de Paris, Cochin hospital, Port-Royal maternity unit, Cochin hospital, hôpitaux universitaires Paris Centre, AP–HP, DHU risks in pregnancy, Paris Descartes university, 75014 Paris, France*

ARTICLE INFO

Article history:
Received 12 July 2017
Received in revised form 9 November 2017
Accepted 22 November 2017
Available online 28 November 2017

Keywords:
Induction of labour
Cervical ripening
Prostaglandins
Oxytocin
Obstetric practices

ABSTRACT

Introduction. – In 2016, 22.0% of deliveries in France were induced. The current lack of high level of evidence data about the methods and indications for induction of labour has promoted heterogeneous and non-recommended practices. The extent of these different practices is not adequately known in France today, although they may influence perinatal outcomes. The objective of this study was to report current practices of induction of labour in France.
Material and methods. – This study surveyed 94 maternity units in seven perinatal networks. A questionnaire was sent by email to either the department head or delivery room supervisor of these units to ask about their methods for induction and their attitudes in specific obstetric situations.
Results. – The rate of induction varied between maternity units from 7.7% to 33% of deliveries. Most units used two (39.4%) or three or more (35.1%) agents for cervical ripening. In all, 87 (92.6%) units reported using dinoprostone as a vaginal slow-released insert, 59 units dinosprostone as a vaginal gel (62.8%) and 46 units a balloon catheter (48.9%). Only three units reported using vaginal misoprostol. Inductions without medical indication were reported by 71 (75.5%) maternity units, and 22 (23.4%) units even when the cervix was unfavourable. Obstetric attitudes in cases of breech presentation, previous caesareans, fetal growth restriction or macrosomia and prelabour rupture of the membranes varied widely.
Discussion. – The variability of practices for induction of labour and the persistence of disapproved practices call for an assessment of the effectiveness and the safety of the different strategies.

Introduction

In 2016, 22.0% of French deliveries began by induction of labour, which is one of the most common obstetric interventions today [1]. Current data do not allow us to define an ideal induction protocol [2]. Therefore, the substances used, their route of administration and dosage, and the types of monitoring vary widely. Similarly, indications for induction and clinical contexts are numerous, and most Clinical Practice Guidelines on this topic are based on studies that provide low levels of evidence [3–8].

In France, neither the health-related administrative databases nor the national perinatal surveys furnish sufficiently precise data

* Corresponding author at: Inserm UMR1153, EPOPé team, Port-Royal maternity – 6th floor, 53, avenue de l'Observatoire, 75014 Paris, France.
E-mail address: pauline.blanc-petitjean@inserm.fr (P. Blanc-Petitjean).

https://doi.org/10.1016/j.jogoh.2017.11.006
2468-7847/

for a specific study of induction practices. Several earlier surveys about them have been published. However, because of their age, the biases associated with their methodology, or the lack of representativeness of the sample of maternity units included, they do not reflect current French practices [9–12]. They nonetheless described a great heterogeneity in induction practices and it is probable that this variability persists today.

The objective of this study was to take an inventory of the practices of the induction of labour in France and to determine the differences in practices between maternity units and between perinatal networks.

Material and methods

This survey examined practices in 94 maternity units from seven perinatal health networks participating in the MEDIP (methods of induction of labour and perinatal outcomes) study, a prospective population-based cohort study. Its objective was to obtain national data about induction of labour practices for live fetuses. This study took place for one month, between November and December 2015, in the following perinatal networks: RPPS (southern Paris), Perinat 92 (Hauts-de-Seine), MYPA (Yvelines and its surrounding area), OMBREL (Lille and its surrounding region), Aurore (Rhône-Alpes), Naître En Alsace, and the perinatal network of Basse Normandie. These networks volunteered to participate in MEDIP and were selected for reasons of feasibility, in particular because they regularly engage in practice evaluation surveys. All the maternities of the participating networks agreed to participate to the survey.

We collected data about the participating maternity units as well as individual data about the women whose labour was induced during the study period. The individual data will be analysed later. The results presented here cover the responses to the questionnaire completed by each maternity unit about their practices and standard protocols for induction of labour. The questionnaire was sent by email to the local investigator of each unit–either the department head or the delivery room supervisor during the study period. All maternity units in each of the seven participating networks completed the questionnaire. They were also asked to report their total number of deliveries after 22 weeks of gestation and the number of induction for live fetuses to determine induction rates during the study period.

The institutional questionnaire was composed of multiple-choice questions about:

- methods of induction used there (for hormonal methods, the substance, dosage, and route of administration; for mechanical methods, the type of material used);
- modes of use and monitoring of these methods (sites where placement and monitoring occurred, maximum number of placements, minimum interval between two placements or maximum time of placement, filling volume for the balloon catheter);
- management if the first method failed (other method of cervical ripening, oxytocin, or caesarean);
- attitudes towards induction or cervical ripening in several specific obstetric situations: breech presentation, previous caesareans, fetal growth restriction, suspected fetal macrosomia, prelabour rupture of the membranes, and induction without medical indication.

Clinical research technicians collected additional data about the characteristics of each participating maternity unit: status, that is, public university (teaching) or non-university, private facility of community interest, private; maternity unit level (I, II, or III), and number of deliveries in 2015 ($<$ 500, 500–1499, 1500–2999, or $\geq$ 3000).

The participating maternity units were described by their status, annual number of deliveries, level of care and induction rate during the study period. Using data from the French Statistique annuelle des établissements de santé (SAE), these characteristics were compared with those of all French maternity units. The methods of cervical ripening used in the units were described as well as their specific modes of use. Attitudes toward induction and cervical ripening were also described in cases of breech presentation, previous caesarean, fetal growth restriction, fetal macrosomia, prelabour rupture of the membranes, and induction without a medical indication.

We also compared practices between perinatal networks to determine if maternity units in the same perinatal network had homogeneous induction practices.

Variables were described by numbers of maternity units and frequencies and compared with the Chi^2 test when necessary. Significance was set at 0.05. Statistical analyses were performed with Stata software, version 12.1.

Results

Of the 94 maternity units participating in MEDIP, 57 were public, including 12 university (12.8%) and 45 non-university (47.9%) units, 8 were private institutions of collective interest (ESPIC) (8.5%) and 29 were private (30.8%). Most had a volume of deliveries between 500 and 1500 (42.6%) or between 1500 and 3000 (32.8%) deliveries in 2015. According to the SAE, characteristics of the participating units did not differ from those of all French maternity units in 2015 (Table 1).

The overall induction rate in the MEDIP study was 21.0%. Network induction rates ranged from 15.9% to 23.9% (Table 1) and individual maternity unit rates from 7.7% to 33.0%. Wide ranges in induction rates were also observed between maternity units providing the same level of care. Induction rate was 18.1% in level I units (individual level I maternity unit rates from 7.7 to 32.2%), 20.8% in level II units (individual level II maternity unit rates from 8.6 to 31.5%), and 23.2% in level III units (individual level III maternity unit rates from 19.0 to 33.0%). Two thirds of the maternity units (68.1%) reported that they had a local protocol for induction of labour.

The most widely used ripening agents were dinoprostone as a vaginal slow-released insert (92.6%), dinoprostone as a vaginal gel (62.8%) and balloon catheter (48.9%). Other methods of ripening were used more rarely. Three maternity units reported using vaginal misoprostol, two dinoprostone as an intracervical gel, and one intravenous dinoprostone. The number of methods used in individual units ranged from one to four; most units had two (39.4%) or three ripening agents (35.1%) available (Table 2).

Maternity units that used the same method of cervical ripening administered them differently. For the dinoprostone vaginal slow-released insert, different units allowed the placement of one (41.4%), two (55.2%) or three (2.3%), generally for a maximum of 24 hours (96.6%). Dinoprostone as a vaginal gel could be administered one (20.3%), two (62.7%), three (10.2%), or four (6.8%) times. The minimum interval between administrations also varied: 4 to 6 hours (72.3%), 8 to 12 hours (10.6%) or 24 hours (17%). Misoprostol was only administered vaginally with a dose of a quarter of a tablet for two maternity units ($n = 2$) or an eighth of a tablet (prepared at the hospital pharmacy) for the third ($n = 1$) and each unit had a different maximum number of administrations, which ranged from 1 to 4. Balloons catheter were most often double devices (60.9%), filled with 10 to 20 mL (6.5%), 30 to 50 mL (50%) or 60 to 80 mL (41.3%) of sterile water. The balloon was most often left in place for 12 (47.8%) or 24 hours (47.8%) (Table 3).