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CONTENT

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Guideline for contributors

Indonesian Journal of Obstetrics and Gynecology will be pleased to receive material contributed by anyone interested in obstetrics and gynecology, in the form of research report, literature review, or case report. With condition the material submitted to the **Indonesian Journal of Obstetrics and Gynecology** should never have been or will not be submitted to any other publication. Manuscript should be written in English. Author should follow the manuscript preparation guide:

1. **Title**, should be brief, specific and informative. Include a short title (not exceeding 40 letters and spaces).
2. **Name of Author(s)**, should include full names of authors, address to which proofs are to be sent, name and address of the Department(s) to which the works should be attributed.
3. **Abstract**, concise description (not more than 250 words) of the background, purpose, methods, results and conclusions required. Keywords (3 - 5 words) should be provided below the abstract.
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7. **Discussion**, explaining the meaning of the examination's results, in what way the reported result can solve the problems, differences and equalities with previous study and development possibilities. This section should include the conclusion of the reported work and suggestion for further studies if necessary.
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Each article contains a maximum of three graphs. Colour or black and white photographs must be submitted with clear illustrations and graphs. Photographs should be prepared with the minimum size of 125 x 195 mm².

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Indonesian Journal of Obstetrics and Gynecology *menerima sumbangan tulisan dari para dokter di seluruh Indonesia yang tertarik dalam kebidanan dan kandungan, dalam bentuk laporan penelitian, tinjauan pustaka, atau laporan kasus. Naskah tersebut belum pernah dan tidak akan diserahkan ke penerbit lain. Naskah harus ditulis dalam bahasa Inggris. Penulis harus mengikuti panduan penulisan naskah sebagai berikut:*

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Research Article

Comparison between Vacuum and Forceps Extraction to Neonatal outcome on Prolonged Second Stage of Labor

Perbandingan Efektivitas Vakum dan Forseps terhadap Luaran Janin pada Kala Dua Lama

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Abstract

Objective: To assess the effectiveness of vacuum and forceps extraction in prolonged second stage in Dr. Mohammad Hoesin Hospital Palembang.

Methods: A retrospective study for 5 years (2005-2009) by doing a prognostic test on prolonged second stage of labor.

Results: The subject age most commonly ranges from 20 to 35 years (84.8% in the forceps extraction group and 86% in the vacuum group). The common parity was nulliparity (58.1% in the forceps extraction group and 61.58% in the vacuum extraction). In the forceps extraction group, 76.7% scores >7 in the 1 minute APGAR score with the mean score of 7.14±1.62, whilst in the vacuum extraction group, 79.1% scores >7 in the 1 minute APGAR score, with the mean score of 7.16±1.78. And in the forceps extraction group, 94.2 scores >7 in the 5 minute APGAR score with mean score of 8.62±1.11, whilst in the vacuum extraction group, 93% scores >7 in the 5 minute APGAR score with the mean score of 8.65±1.08. It is concluded that there is no significant differences on both 1 and 5 minute APGAR scores (p value is 0.713 and 0.755, respectively). Maternal complication of extended episiotomy and perineal rupture were found more often in forceps extraction, but with no statistically significant difference (p=0.324).

Conclusion: There is no difference of effectiveness between forceps extraction and vacuum extraction in the case of prolonged second stage. Physicians are free whether to use the vacuum or forceps according to their own desirability and skill.

[Indones J Obstet Gynecol 2012; 36-1:28-31]

Keywords: forceps extraction, prolonged second stage, vacuum extraction

Abstrak

Tujuan: *Menilai efektivitas ekstraksi vakum dan forseps terhadap luaran bayi pada kala II lama di RSMH Palembang.*

Metode: *Penelitian ini merupakan penelitian retrospektif selama 5 tahun (2005-2009) dengan melakukan uji prognostik pada ibu dengan persalinan kala II lama.*

Hasil: *Dalam penelitian ini didapatkan 86 subjek dengan ekstraksi forseps dan 86 subjek dengan ekstraksi vakum. Usia sebagian besar subjek adalah 20-35 tahun (84,8% pada kelompok forseps dan 86% pada kelompok vakum), dengan paritas terbanyak adalah paritas nol atau kehamilan pertama (58,1% pada ekstraksi forseps dan 61,6% pada ekstraksi vakum). Terdapat 76,7% pasien dengan nilai APGAR 1 menit > 7 pada kelompok ekstraksi forseps dan 79,1% pada kelompok vakum. Didapatkan 94,2% pasien dengan nilai APGAR 5 menit >7 pada kelompok ekstraksi forseps dan 93,0% pada kelompok ekstraksi vakum, namun tidak didapatkan perbedaan bermakna nilai APGAR 1 dan 5 menit (p=0,713 dan p=0,755). Komplikasi ibu berupa perluasan luka episiotomi dan ruptur perineum lebih banyak ditemukan pada penggunaan ekstraksi forseps, meskipun tidak ada perbedaan yang bermakna secara statistik (p=0,324).*

Kesimpulan: *Tidak ada perbedaan efektivitas antara ekstraksi forseps dan vakum terhadap luaran bayi dan komplikasi ibu pada persalinan kala dua lama. Penolang bebas menggunakan vakum atau forseps sesuai keinginan dan keahliannya.*

[Maj Obstet Ginekol Indones 2012; 36-1:28-31]

Kata Kunci: *ekstraksi forseps, ekstraksi vakum, kala dua lama*

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INTRODUCTION

Vaginal operative delivery in obstetrics is an integral part of obstetric care in the world. Operative vaginal delivery incidence tended to increase with the number of referral cases such as prolonged second stage. In the United States, the number of vaginal operative delivery is different in every state, but vacuum extraction is more frequent than forceps extraction.[1] Operaive vaginal delivery in the UK accounts for 11% of all birth.[2] In Indonesia, data on the use of vacuum and forceps are not known for sure. Data about operative delivery in Indonesia also vary in various hospitals. Research conducted at the Dr. Mohammad Hoesin hospital over 5 years period (1999-2004) showed that the incidence of vacuum extraction was 3.46%, while the incidence of forceps extraction was 9.46%. The most common indication for vacuum extraction is

prolonged second stage (45.33%), whereas for the forceps extraction, the most common indication is severe preeclampsia (39.76%).[3]

Vacuum extraction and forceps extraction were two kinds of operative vaginal delivery that the choice to use depends on the tradition, training and skill of the operator, availability of tools and the policies regarding clinical indications.[1,2,4]

Many studies have been conducted to assess the risk of complications of forceps or vacuum either to the mother or the fetus. Maternal complications associated with trauma in the form of lacerations in the genital organs, such as lacerations of the perineum, vaginal laceration, lacerations on the labia, periurethral, and cervical lacerations.

In all, forceps extraction is more related to maternal perineal trauma, including trauma to the sphincter ani. However, the failure rate is lower when compared to vacuum extraction.[2,4-12]

Complications may include trauma to the fetal face, skin and scalp, development of cephal hematomea, trauma to the eye resulting in retinal hemorrhage, and intracranial bleeding causing death. Many studies said that there was no significant difference between forceps extraction and vacuum extraction for fetal outcome, although it is mentioned that the vacuum is associated with cephal hematoma, and trauma to the face is more frequent on the use of forceps extraction.[2,4,13-15] Data on morbidity and mortality of fetal on mothers with prolonged second stage terminated with vacuum or forceps extraction in Dr. Mohammad Hoesin Hospital Palembang over the past 5 years are not yet available, thus research is needed to assess the effectiveness of vacuum and forceps extraction in Dr. Moh. Hoesin Hospital Palembang.

METHODS

This study is a retrospective study with prognostic testing in women with prolonged second stage terminated with forceps or vacuum extraction. Research was carried out in the Department of Obstetrics and Gynecology and Department of Neonatology of Medical Faculty University of Sriwijaya/ Dr. Moh. Hoesin Hospital Palembang. The study population was all patients with prolonged second stage admitted to Dr. Moh. Hoesin Hospital Palembang during January 1 2005 through December 31 2009 that met inclusion criteria, including primigravida/multigravida, aterm gestation, single fetus, occiput presentation, station Hodge III plus or outlet pelvic descent. Exclusion criteria included preeclampsia/eclampsia, premature rupture of membrane (PROM), maternal diabetes mellitus, multiple pregnancy, gestational age <37 weeks, fetal distress, infants with congenital abnormalities, birth weight <2500 g and >4000 g and neglected labor. Data collection were based on medical record regarding vaginal operative delivery (forceps or vacuum extraction). Assessment of fetal outcome included Apgar score, cephal hematoma complication, trauma to the eye, N.VII paralysis, brachial plexus paralysis, skull fractures, sepsis, seizures, and neonatal death in hospital. We conducted statistical analysis with χ^2 (chi square) for dicotomic variable and student t test for continuous variable.

RESULTS

This study had 86 subjects in the forceps extraction group and 200 subjects in the vacuum extraction group. After we matched the age and parity, we got 86 subjects on each groups.

Table 1. Maternal characteristics

Subject characteristics	Forceps extraction		Vacuum extraction	
	n	%	n	%
Age (years)				
< 20	4	4.7	3	3.5
20 - 35	73	84.8	74	86.0
> 35	9	10.5	9	10.5
Domicile				
Urban area	43	50.0	42	48.8
Rural area	43	50.0	44	51.2
Parity				
0	50	58.1	53	61.6
1 - 5	34	39.6	33	38.4
> 5	2	2.3	0	0.0

From Table 1. We found that 84.4%, of forceps extraction group aged 20 - 35 years as well as 86% in vacuum extraction. The mean age of the patients in forceps extraction group was 28.13 ± 6.10 years, while in the vacuum extraction group, it was 27.66 ±5.52 years. There was no significant differences of age between the two groups (p = 0.928).

In the forceps extraction group, 58.1% were nullipara and in vacuum extraction group, 61.6% were nullipara. There was still no significant differences of parity from both groups (p = 0.557).

Half of the subjects from forceps group lived in urban area and 48.8% from vacuum group also lived in urban area.

Table 2. Fetal outcomes

Subject characteristics	Forceps extraction		Vacuum extraction	
	n	%	n	%
Fetal weight (grams)				
2500 - 2999	31	36.0	23	26.7
3000 - 3499	39	45.3	48	55.9
3500 - 3999	16	18.7	15	17.4
APGAR score				
1 minute				
0 - 2	0	0.0	0	0.0
3 - 4	0	0.0	0	0.0
5 - 7	20	23.3	18	20.9
> 7	86	76.6	68	79.1
5 minutes	0	0.0	0	0.0
0 - 2	0	0.0	0	0.0
3 - 4	5	5.8	6	7.3
5 - 7	81	94.2	86	93.0
> 7				
Fetal complications				
Cephalhematome	0	0.0	0	0.0
Brachial paralysis	0	0.0	0	0.0
Trauma to the eye	0	0.0	0	0.0
N.VII paralysis	0	0.0	0	0.0
Cranial fracture	0	0.0	0	0.0
Seizures	0	0.0	0	0.0
Sepsis	0	0.0	0	0.0
Neonatal mortality in hospital	0	0.0	0	0.0
Maternal complications				
Extended episiotomy wound	4	4.7	2	2.3
Perineal rupture				
Grade I	3	3.5	2	2.3
Grade II	2	2.3	0	0.0
Grade III	0	0.0	0	0.0
Grade IV	0	0.0	0	0.0

From Table 2. Birth weights range of 3000-3499 grams 45.3% and 55.0% in vacuum and forceps extraction group respectively. We found no significant difference (p = 0.342) of birth weight between the groups.

In the forceps extraction group, 76.7% of the subject scores >7 in the 1 minute APGAR score with the mean score of 7.14±1,62, whilst in the vacuum extraction group, 79.1% scores >7 in the 1 minute APGAR score, with the mean score of 7.16±1.78. And in the forceps extraction group, 94.2 scores >7 in the 5 minute APGAR score with mean score of 8.62±1.11, whilst in the vacuum extraction group, 93% scores >7 in the 5 minute APGAR score with the mean score of 8.65±1.08. It is concluded that there is no significant differences on both 1 and 5 minute APGAR scores (p value is 0.713 and 0.755) respectively.

DISCUSSION

In this study, there was no complication on forceps and vacuum extraction such as cephal hematoma, eye trauma, N.VII paralysis, brachial plexus paralysis, skull fracture, seizures, and sepsis. But there were several cases of maternal complications in the form of episiotomy wound expansion and rupture of the perineum, which were more common in forceps extraction than in vacuum extraction, encountered in as many as four subjects. The occurence of perineal rupture grade I and II were found in 5 cases on forceps extraction group and 2 cases in vacuum extraction group. There was no complication of grade III and IV perineal rupture or uterine rupture. We found that there was no significant differences between the two groups in the incidence of episiotomy wound expansion and rupture of perineum.

This result was similiar with the study conducted by Fidelma O'Mahony et al in 2010, involving 6597 women, which showed that fetal complication such as face trauma found more often in forceps extraction, and cephal hematoma were more common in vacuum extraction rather than forceps extraction. However, there was no significant differences in skull fracture, 1-minute and 5-minute Apgar score, neonatal hospital length of stay, artery umbilical pH, icterus of the fetus, and retinal hemorrhage until fetal death.[3]

Maternal complication encountered in this study happened in subject who was having her first pregnancy (nullipara). From this study, extended trauma or episiotomy wound and perineal rupture grade I and II were more frequent in forceps extraction. There was no case of uterine rupture in this study. Last, there was no significant differences between the two groups about episiotomy wound extension and perineal rupture.

CONCLUSION

There was no significant difference in the effectiveness of forceps and vacuum extraction on neonatal outcome and maternal complications in the prolonged second stage of labor. Selection of forceps or vacuum extraction in women with prolonged second stage could be decided by the clinicians according to their own desire and expertise.

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