

Role of Partograph to reduce the birth injuries

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Abstract

Partogram (Partograph) is a graphical tool represents the events during labor, that helps the care provider to recognize slow progress of labor early, and to start appropriate interventions to prevent prolonged and obstructed labor. In this study, we compared between the percentage of birth trauma which occurred during labor for patients that crossing the alert line of partograph (Group I), and those who crossing the action line (Group II). This study showed that there is no difference statistically between Group I and Group II according to gravida and maternal age. while Group I is higher than Group II according to APGAR score >7 (P value =0.001). There is statistical differences between Group I & II, that Group I is lower than Group II according to perineal tear, fetal birth injuries and rate of C sections (P value: 0.004, 0.009 and 0.000). In conclusion: partograph may be a scientific evidence based to manage labour by early diagnosis, identifying and preventing problems during delivery.

Keywords: partograph, birth, injury.

1. Introduction

Birth trauma (injury) is defined as “an event occurring during the labour or delivery processes that involves actual or threatened serious injury or death to the mother or her baby” [3]

The most common types of birth injuries are Erb’s palsy; which is due to Brachial plexus injury, Subgaleal (subaponeurotic) haemorrhage; which is a haemorrhage outside the skull and below the scalp, and Transient tachypnea of newborn (TTN); which is the commonest respiratory disease with term babies [6]

Early detection of abnormal labor progression, along with prevention of prolonged labour, helps in reducing maternal and perinatal mortality [12]

Slow labor progress was first identified by O’Driscoll as the earliest anomaly of active phase of labor that should be treated promptly to avoid its further progression to complications [10]

Instrumental vaginal delivery, like vacuum or forceps, is carried out for the sake of mother, fetus or both to prevent the complications of prolonged labour [9] and Cesarean section is the other choice of management of prolonged labour [1]

Partograph (or partogram) is a graphical tool that represents key events during labour, this tool is recommended for routine monitoring of labour to provide an early warning system. The partograph helps the clinician to recognize slow progress in labour early, and to initiate appropriate interventions to prevent prolonged and obstructed labour [7].

At the maternal part of partogram, there is an “alert line” which having value to separate women in labour into two groups; first one whose cervical dilatation is more than 1 cm/hr (who are highly unlikely to require operative intervention), and second group whose cervical dilatation is less than 1 cm/hr (who are more likely to require operative intervention) [15].

Another line is called “action line” which is parallel and 4 hours to the right of the alert line. In case that the cervical dilatation is crossing it, so the

clinician must evaluate the woman’s progress in labour and decide appropriate intervention. [15]

2. Patients and Methods

I. Patients:

This study was performed in Benha University Hospital and El-Galaa Teaching Hospital over one hundred (100) patients admitted to the hospitals to deliver,

The 100 patients were classified into two groups: the first group is composed of fifty (50) cases of mothers in labour that crossing the alert line of partograph (Group I), and the other group is composed of fifty (50) cases of mothers in labour that crossing the action line of partograph (Group II).

Ethical considerations

Informed consent and approval of the study protocol by institute ethical committee. Choosing pregnant patients with single, living and full term babies, lying longitudinally, in cephalic presentation, without previous scars of C-sections.

II. Methods

All of the following data were assessed

- Maternal age
- Gravida.
- APGAR score ≥ 7 .
- Perineal tear.
- fetal birth injuries.
- Mode of delivery.

Utilization of partograph:

Start using the partograph at the end of the latent phase demonstrating the progress of 1 cm dilatation per hour (the alert time). This line predicts ideal progress during the active phase (1 cm dilatation per hour). If the plot of progress falls beyond an ACTION line drawn 2-4 hours to the right of this line, progress is described as slow and the cause of this should be discovered.

NB : many women, especially multiparous women, will make faster progress than 1 cm of dilatation per hour)

Then was observed the percentage of birth trauma over these cases.

III. Statistical analysis

The collected data were tabulated and analyzed using SPSS version 16 software (Spss Inc, Chicago, ILL Company).

3. Results

There was no statistically significant difference between Group I and Group II regarding maternal age and Gravida.

The percentage of APGAR score >7 was statistically higher among Group I than Group II (100%, 80%) p value= 0.001

The percentage of CS was statistically lower among Group I than Group II (10%, 94%) p value= 0.000

The percentage of Perineal tear was statistically lower among Group I than Group II (6%, 30%) p value= 0.004 , as shown in Figure (1).

The percentage of fetal birth injuries was statistically lower among Group I than Group II (4%, 24%) p value= 0.009, as shown in Figure (2).

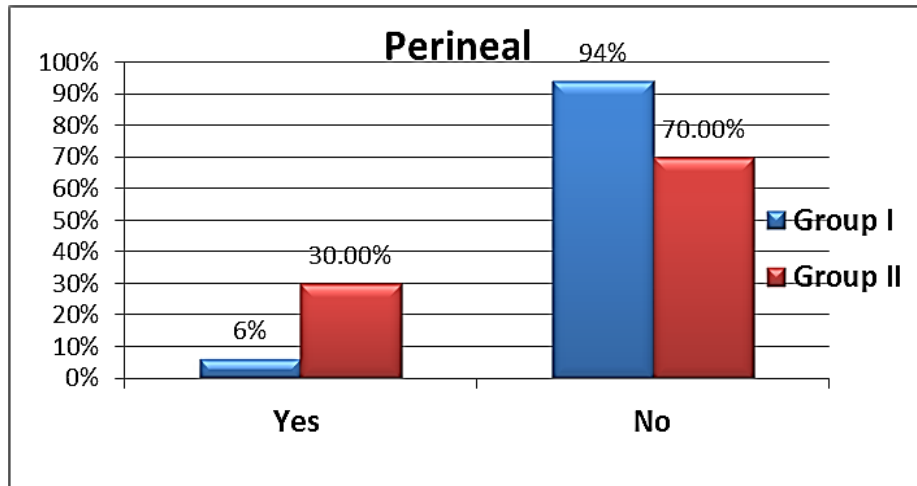


Fig. (1) Comparison between Group I and Group II regarding Perineal tear.

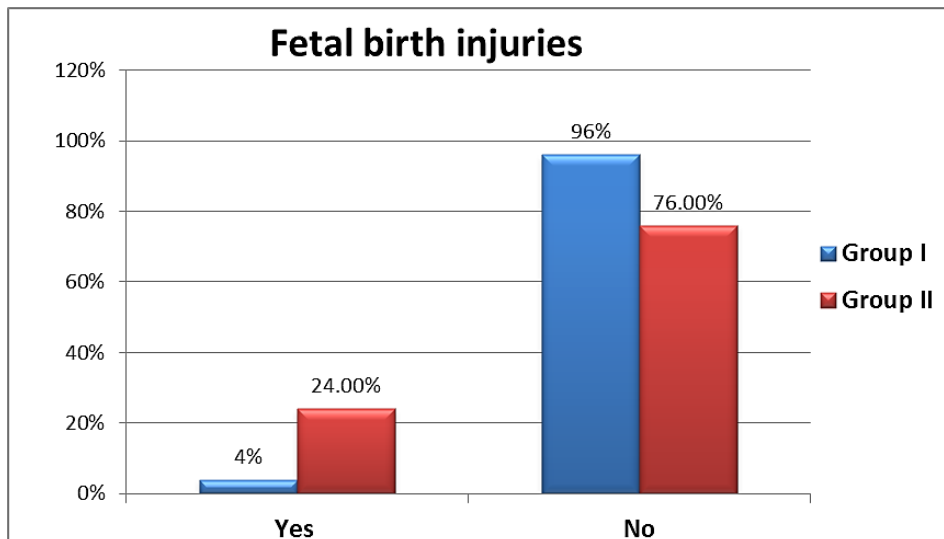


Fig. (2) Comparison between Group I and Group II regarding fetal birth injuries.

Table (1) All these previous data are shown in Table (1).

		Group I (No.= 50)	Group II (No.= 50)	P. value
maternal age	Mean ± SD	24.1 ± 2.3	25.01 ± 2.9	0.085
Gravida	Median	3	2	0.13
	>7	No. 50	40	
		% 100.0%	80.0%	
APGAR score	<7	No. 0	10	0.001
		% 0.0%	20.0%	
	Yes	No. 3	15	
		% 6%	30.0%	
Perineal tear	No	No. 47	35	0.004
		% 94%	70.0%	
	Yes	No. 2	12	
		% 4%	24.0%	
fetal birth injuries	No	No. 48	38	0.009
		% 96%	76.0%	
	CS	No. 5	47	
		% 10%	94.0%	
Mode of delivery	SVD	No. 45	3	0.000
		% 90%	6.0%	

4. Discussion

Maternal mortality represents the single greatest health disparity between high and low income countries, a burden that is especially felt in sub-Saharan Africa and South East Asia where an estimated 99% of all maternal deaths occur [17].

Millennium Development Goal 5 (MDG 5) decided a target of reducing the maternal mortality ratio 'by three quarters, between 1990 and 2015', and having 'a skilled attendant at every birth' [16] the goal where the least progress has been made [14].

The WHO partograph is a simple 1-page tool which is applicable everywhere for assessment of labour progress and maternal/fetal well-being [17]. A WHO multi-centre multinational trial (n ¼ 35,484) to assess partograph utility revealed that it was effective in reducing prolonged labour, augmentation, caesarean section rates and stillbirth.

The present work aimed to compare between the percentage of fetal birth trauma in two arms of study groups; the first group is composed of fifty (50) cases of mothers in labour that crossing the alert line of partograph (Group I), and the other one is composed of fifty (50) cases of mothers in labour that crossing the action line of partograph (Group II).

Regarding maternal age, this study showed that, there was no statistically significant difference between Group I and Group II, This is in accordance with [5].

Regarding gravida, In the current study, there was no statistical significant difference between Group I and Group II. In the WHO study, 34.5% primi and 21% Multigravida crossed the alert line. (17). In (11) study, 11% crossed the action line, while in [5], study 11 (5.5%) out of 200 crossed the action line 7 were primigravida and 4 were multigravida. In the WHO study, 9.9% patients crossed the action line while in

(5) study, significantly fewer patients (5.5%) crossed the action line similar to [15] study (5.3%).

Regarding perineal tear; in our study, its percentage was statistically lower among women that crossing alert line of partograph (Group I) than women that crossing action line (Group II) (6%, 30%) p value= 0.004. In harmony with the present study [13] who reported that, perineal tear was statistically lower among patients who crossing alert line of partograph than women that crossing action line of partograph

Regarding the percentage of APGAR score >7; in the current study, it was statistically higher among women that crossing alert line of partograph (Group I) than women that crossing action line of partograph (Group II) (100%, 80%) p value= 0.001.

[4] found that Apgar scores of 6 or less at 5 minutes of age; (low Apgar scores) were more likely when timely action was not taken after the action line was crossed.

[5] who revealed that, there was no difference in Apgar score at 5min whether patient crossed or did not cross the alert line or action line.

Regarding the percentage of NVD; this study showed that, it was statistically higher among Group I than Group II (90%, 6%) p value= 0.000 . These findings were comparable with the result of study made by (2) who has found that majority of cases before alert line delivered by spontaneous vaginal delivery is 148 out of 152 (98.6%). Cases crossing the action line either required instrumental delivery 7 (33.3%) or required LSCS 12 (57.1%). Only 2 cases who crossed the action line delivered normally 9.5%. Total 17 out of 200 required cesarean delivery (8.5% cases) while 18 out of 200 (9% cases) required instrumental delivery.

5. Conclusion

From this study, it could be concluded that:

Partographic management of labour is a time honored and evidence based scientific way of managing labour. Partogram improves the quality of delivery care, since it permits to problems and make logical and effective interventions. Using the Partogram with alert and action lines makes it easier to establish conducts to be used during labour with a normal evolution, as well as to diagnose any changes, identifying and preventing problems, changing intuitive conduct into a precise action. Partogram reduces unnecessary strain on mothers by reducing total duration of labour, without any increased foetal morbidity and mortality.

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