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ORIGINAL ARTICLE

Predictability of Successful Induction of Labour with Poor Bishop Score

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ABSTRACT

Aim: To determine the percentage of successful induction of labour in patients with poor Bishop Score at PAC Hospital Kamra.
Study design: Prospective Observational Study.
Setting & duration: Pakistan Aeronautical Complex Hospital Kamra, four years from 01.01.2016 till 31.12.2019.
Methods: All booked pregnant women including Primigravidaeand Multigravidae were offered induction of labour regardless of Bishop Score to assess the predictability of successful induction.
Results: All pregnant ladies booked at Pakistan Aeronautical Complex were induced at term regardless of favourability of Bishop Score and parity. Total number of patients included in the study over four years was 403.Out of these 1280(32%) were primigravidae and 2723(67%) were multigravidae. Successful induction was achieved in 883(68.5%) of primigravidae and was even higher in multigravidae where it was 2205(78.25%). It was found that the success rate of induction in case of favorable and unfavorable bishop score was not significantly different. Out of 665 primigravidae with favorable bishop score 521 delivered which makes 78.3% while 362 out of 615 primigravidae with unfavorable bishop score delivered successfully which makes 58.8%.
Conclusion: We offered Induction of labour to all pregnant women regardless of Bishop Score and parity. A Bishop score of seven or less is considered unfavorable whereas a Bishop score of eight or more is considered favorable for induction of labor.
Keywords: Induction of Labor, Bishop Score, normal vaginal delivery.

INTRODUCTION

Induction of labour is defined as stimulation of child birth and delivery before the labour begins itself aiming at vaginal birth. This is mostly done to avoid potential harmful effects to the fetus and/or mother associated with further prolongation of pregnancy. Case based risk benefit ratio is the determining factor for the time and mode of induction of labour. Different methods have been adopted to induce labour. They can be non pharmacological or pharmacological. Pharmacological methods may be used via more than one routes of administration. Induction of labour is said to be successful if a vaginal delivery is achieved. Vaginal delivery itself depends on many factors and so does the predictability of successful induction. The most widely used method to predict successful vaginal delivery is bishop score. Bishop score is calculated by digital examination. Different parameters are given numbers against a total score of 13. A bishop score of less than six is considered unfavorable and is associated with poor outcome whereas a bishop score of eight is considered favorable and is associated with higher rates of normal delivery after induction of labour. This leaves bishop score of seven in the grey area and this association cannot be taken as the only reliable reference while taking decisions for induction of labour. It has been seen that vaginal delivery can be achieved with a low bishop score and conversely may not occur with a good bishop score on induction. Pregnant women allowed to wait for alonger period of time have a better chance of normal delivery as compared to those in whom less time was given. Also other factors like age and BMI also have significant role to play. Understanding of these associations is very important for better patient management and outcome.

The objective of the study was to determine the percentage of successful induction of labour in patients with poor Bishop Score at PAC Hospital Kamra.

MATERIALS AND METHODS

This prospective observational study was carried out at Pakistan Aeronautical Complex Hospital Kamra from January 01, 2016 till December 31, 2019 after approval from IRB. All primigrvidae and multgravidae patients with previous normal deliveries reporting to PAC Hospital through OPD and emergency at term between 18 to 40 years of age were included in the study. Primigravidae with breech presentation at term and multigrvidae with previous one or more caesarean sections were excluded. Data was collected on specially designed proforma including name, age, BMI, parity, induction to delivery interval and mode of delivery. Patients were divided in to two main groups primigravidae and multigravidae which were further subdivided into two subgroups according to bishop score of less than 7 and more than 7. Induction of labour was offered to all patients regardless of bishop score. Vaginal birth both spontaneous and operative was considered to be successful outcome of induction. Time allotted since induction till delivery was 48 hours. Percentages were calculated to draw comparison between rates of successful induction in patients with poor and favorable bishop score.

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RESULTS

This study was carried out to determine the predictability of successful induction of labour based on bishop score. A total of 4003 patients were included in the study spread over a period four years from January 01, 2016 to December 31, 2019. Out of these 1280(32%) were primigravidae and 2723(67%) were multigravidae. All patients between 18 to 40 years of age reporting through OPD and emergency at term regardless of parity were included. Patients with previous caesarean sections and primigravidae with breech presentation were excluded from the study. Patients were divided in to two main groups. Group A comprised of primigravidae and Group B included multigravidae. A digital examination was performed in all patients to assess the favorability of bishop score by assessing cervical dilatation, cervical length, position,consistency and station of vertex. Subsequently a score was recorded against a total score of 13. A bishop score of less than 7 was labeled unfavorable or poor and that of more than 7 was labeled as favorable or good. Both groups A and B were divided into subgroups 1 and 2. Whereby subgroup 1 included patients with bishop score of 7 or less and subgroup 2 included patients with bishop score more than 7. Age groups between 18 to 25was compared to those between 26 to 40 years.

Successful induction was achieved in 883(68.5%) of primigravidae and was even higher in multigravidae where it was 2205(78.25%).It was found that the success rate of induction in case of favorable and unfavorable bishop score was not significantly different. Out of 665 primigravidae with favorable bishop score 521 delivered which makes 78.3% while 362 out of 615 primigravidae with unfavorable bishop score delivered successfully which makes 58.8%. This difference was further reduced in multigravidae where out of 1781 multiigravidae with favorable bishop score 1549 delivered which makes 86.9% while 656 out of 942multigravidae with unfavorable bishop score delivered successfully which makes 69.6%. Out 684 primigravidae

between the age of 18 to 25 years 534 delivered successfully which makes 78.07% whereas those in those between 26 to 40 years of age 342 out 596 patients delivered which makes 57.38%. On the other hand out 987 multigravidae between the age of 18 to 25 years 690 delivered successfully which makes 69.9% whereas those in those between 26 to 40 years of age 1569 out of 2130 patients delivered which makes 73.6%.

Table 1: Percentage of successful inductions in favorable and unfavorable bishop score

Parity/bishop score	Bishop score Less than 7 Gp 1	Successful	Unsuccessful	Bishop score More than 7 GP 2	Successful	Unsuccessful
Group A (Primigravidae1280)	615	362(58.8%)	253(41.2%)	665	521(78.3%)	1449(21.7%)
Group B (Multigravidae2723	942	656(69.6%)	286(30.4%)	1781	1549(86.9%)	232(13.02%)

Overall successful inductions in primigravida 68.5% Overall successful inductions in primigravida 78.25%

Table 2: Percentage of successful inductions based on age

Parity/age	18 to 25 years	Successful	Unsuccessful	26 to 40 years	Successful	Unsuccessful
Group A (Primigravidae 1280)	684	534(78.07%)	150(21.92%)	596	342(57.38%)	254(42.61%)
Group B (Multigravidae2723)	987	690(69.9%)	297(30.01%)	2130	1569(73.6%)	561(26.4%)

Overall successful inductions in primigravidabetween 18 – 25 years 78.07% Overall successful inductions in primigravidabetween 26 – 40 years 57.38%
Overall successful inductions in multigravida between 26 – 40 years 69.9% Overall successful inductions in multigravida between 26 – 40 years 73.6%

DISCUSSION

Induction of labour is defined as application of artificial methods to achieve normal delivery. This practice has existed since ancient times even before the cesarean delivery was introduced and different methods have been used ever since then. This practice is based on the fact that prolongation of pregnancy beyond a certain limit can be detrimental to both mother and fetus and is associated with poor fetal outcome.Induction of labour is an obstetric procedure which is performed very frequently worldwide: recent data shows a percentage of induction of labour upto 24.5% in the United States[1]., 35.5% in Srilanka[2] and 6.8 to 33% in Europe[3].

Different methods used for induction of labour include pharmacological, mechanical, investigational and complementary[4-9]. Non pharmacological methods also known as alternate methods include castor oil, which has received renewed interest in recent times[10-12], nipple/ breast stimulation[13-15], sexual intercourse[15], acupuncture[16], homeopathy[17] and hypnotic relaxation[18]. Their role in induction of labour is still uncertain due to lack of studies. Membrane sweep has shown a reduction in number of post term pregnancies and need for induction of labour without increasing the risk of infection. All guidelines recommend membrane sweep at or beyond 40 weeks and even before pharmacological induction of labour[19-23]. Even if the cervix is closed and membranes cannot be reached a cervical message in all four vaginal fornices may achieve same effect[20].

Pharmacolgical methods include oxytocin and prostaglandins. Prostaglandin E1 is misoprostol which can be administrated by oral, buccal/sublingual or vaginal route[24,25] and Prostaglandin E2 is dinoprostone available as tablet, gel and insert for vaginal route. Cervical ripening can be performed in in patient or outpatient setting[26-28]. Oxytocin is used when bishop score is 7 or more. Moreover an induction should not be stated as failed before the administration of oxytocin in the presence of fetomaternal well being. Also oxytocin was used as a method of induction of labour even before PGEs were introduced and was associated with good results[29]. Foley's catheter is the most frequently used mechanical method of induction of labour[30] with different ballon volumes[31]. It can be used alone[32] or in combination with misoprostol[33,34] or oxytocin[35-39]. The combination of mechanical method and oxytocin has shown an increase in the rate of delivery in 24 hours in nulliparous women[39]. Nontheless simultaneous use of mechanical and pharmacological methods has not shown clear benefits in terms of mode of delivery. Mechanical method with misoprostol[19] has shown a decrease in intervension to delivery time and hyperstimulation without effecting rates of cesarean delivery.

Our study was aimed at increasing the number of elective inductions of labour at term regardless of favorability of bishop score. We offered induction of labour to all primigravidae with cephalic presentation and multigravidae with previous normal vaginal deliveries and cephalic presentation at term reporting through OPD and Emergency between the age of 18 to 40 years.Patients with previous caesarean sections and primigravidae with breech presentation were excluded from the study. We divided the patients into two main groups. Time allowed to labour was 24 to 48 hours without compromising fetomaternal outcome. Group "A" comprised of primigravidaeand group "B" included multigravidae. Both groups were further subdivided into two with favorable (>7) and unfavorable(<7) bishop score. Rate of successful vaginal deliveries in the subgruops was compared with eachother and withthe main groups. We also analysed the effect age in achieving successful vaginal delivery in the induced patients. A total of 4003 patients were included in the study spread over a period four years from January 01, 2016 to December 31, 2019. Out of these 1280(32%) were primigravidae and 2723(67%) were multigravidae. A digital examination was performed in all patients to assess the favorability of bishop score by assessing cervical dilatation, cervical length, position, consistency and station of vertex. Subsequently a score was recorded against a total of 13. A bishop score of less than 7 was labeled unfavorable or poor and that of more than 7 was labeled as favorable or good. Both groups A and B were divided into subgroups 1 and 2 whereby subgroup 1 included patients with bishop score of 7 or less and subgroup 2 included patients with bishop score more than 7. Effect of age of the patient on induction of labour was also studied. Age group between 18 to 25 was compared to those between 26 to 40 years.

Successful induction was achieved in 883(68.5%) of primigravidae and was even higher in multigravidae where it was 2205(78.25%.It was found that the success rate of induction in case of favorable and unfavorable bishop score was not significantly different. Out of 665 primigravidae with favorable bishop score 521 delivered which makes 78.3% while 362 out of 615 primigravidae with unfavorable bishop score delivered successfully which makes 58.8%. This difference was further reduced in multigravidas where out of 1781 multigravidae with favorable bishop score 1549 delivered which makes 86.9% while 656 out of 942 multigravidae with unfavorable bishop score delivered successfully which makes 69.6%.

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This study points to the fact that Bishop score alone is a poor predictor of successful induction of labour and if the maternal and fetal statuses allow latent phase upto 24 hours or more and oxytocin administration at least 12-18 hours of membrane rupture achieve better success in induction of labour. Also arrest of labour in first stage should not be labeled before reaching a dilatation of at least 6cm.Applying all these recommendations we achieved a safe and far better rate of vaginal delivery.

CONCLUSION

It was concluded on the basis of results obtained that inducing all induced patients resulted in better delivery rate without fetometernal compromise when allowed to labour for a longer period of time. Moreover every woman has a right to labour and induction should be offered to all women regardless of bishop score to avoid preventable cesarean sections and their inherent risks.

Conflict of interest: Nil

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