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Acupuncture for Initiation of Labor in Nulliparous Women at Term

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Abstract: Background: Acupuncture is a technique that relies upon placement of hair thin needles along specified acupuncture points, its name originating from the Latin words *acus* meaning "needle" and *pungere* meaning "prick". After placement, needles are then manipulated via manual needling stimulation. In acupuncture, certain points on the body associated with energy channels or meridians are stimulated by the insertion of fine needles in the following sites (hand. Leg and back). **Aim of the Work:** To evaluate whether outpatient acupuncture treatments combined with routine medical care can short the time to delivery, decrease rate of cesarean section and reduce post-term induction**. Patient and methods:** The study was done on 80pregenant women it divided into 2 groups: acupuncture groug40 and control group 40. **Results:** showed there are statistically significant increased rate of spontaneous vaginal delivery & statistically significant decreased in rates of induced vaginal delivery and caesarian section in the acupuncture group compared to control group (P. < *0.05*). **Conclusion:**. This study clearly demonstrates that assessing the efficacy of acupuncture for the initiation of labor is feasible, as it decrease duration of labor and increase incidence of spontaneous vaginal delivery.
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Key words: Acupuncture, Induction of labor, Bishope score

1. Introduction:

Acupuncture is a technique that relies upon placement of hairthin needles along specified acupuncture points, its name originating from the Latin words *acus* meaning "needle" and *pungere* meaning "prick". After placement, needles are then manipulated via manual needling, electrical stimulation (electroacupuncture), heat (moxibustion), pressure (acupressure) or laser energy. In acupuncture, certain points on the body associated with energy channels or meridians are stimulated by the insertion of fine needles.***(Saad & de Medeiros, 2019)***

Induction of labor is defined as the process of artificially stimulating the uterus to start labor. It is usually performed by administrating oxytocin or prostaglandins to the pregnant woman or stripping of membrane of amniotic sac or by manually rupturing the amniotic membranes ***(WHO, 2011).***

The Shanghai College of Traditional Medicine recommends acupuncture for labor induction, and it is used routinely for labor induction in some societies. It is hypothesized that acupuncture neuronal stimulation may increase uterine contractility either by central oxytocin release or by parasympathetic stimulation of the uterus **(Citkovitz C**, ***et al.,*** **2009)**.

Aim of the work: To evaluate whether outpatient acupuncture treatments combined with routine medical care can short the time to delivery, decrease rate of cesarean section and reduce post-term induction.

2. Patients and Methods:

This randomized interventional longitudinal prospective control study was coducted at Al-Zhraa University Hospital and Badr University Hospital.

Study population:

Eighty pregnant women at thirty-eight weeks of gestation were assessed for eligibility to join the study. Gestational ages were estimated by last normal menstrual period or early ultrasonographic report at first trimester. They were divided randomizedly to acupuncture and control groups forty women in each group. The randomization performed by computer generated randomization and randomized number put in closed opaque envelop.

The time from acupuncture to delivery, mode of delivery, fetal and maternal outcome, duration of labour, effect of acupuncture on fetal activity (NST) and Apgar scores were recorded.

Ethical considerations:

Eighty pregnant women at thirty-eight weeks of gestation were assessed for eligibility to join the study. All participants received written and oral informations about the study before inclusion. Written informed

consent were taken from each women before inclusion in the study.

Procedures:

Each women take semi setting position. Needles which were used made of sterile disposable stainless steel needles 2mm in diameter and 5mm in depth were inserted at eight points bilaterally and were retained for thirty minutes. Manual stimulation was performed during that time Acupuncture points located on the

1-Spleen 6 (SP6)2-, Large intestine 4 (L14)3-urinary bladder (UB32)
4-urinarybladder (UB31).

The procedure was administered up to maximum 2 times over 1 week period (every 3 days) and routine prenatal care was continued. Participants were admitted to labor ward when they had rhythmic forceful contraction (3 contractions in 10 min interval) with cervical dilatation 4-5 cm or rupture membrane. When the fetus be compromised, induction of labor mandatory. If the pregnancy extended beyond the forty one weeks of gestation, women admitted for further evaluation.

Statistical Analysis

Data was analyzed by Microsoft Office 2010 (excel) and Statistical Package for Social Science (SPSS) version 20 putting P value < 0.05 as significant.

3. Results:

Results of the current study shows that no statistically significant difference as regard demographic data (Age, Gestational age and BMI) between acupuncture and control groups (P >0.05) (Table 1).

On the other hand it shows there are statistically significant increased rate of spontaneous vaginal delivery & statistically significant decreased in rates of induced vaginal delivery and caesarian section in the acupuncture group compared to control group (P. < *0.05*) (Table 2).

Also There is high statically significant decreased in the time from first visit of examination to start of active labor in acupuncture group compared to control group (P <0.01). There is no statically significant difference as regard duration of labor on both groups (P. > 0.05) (Table 3).

Also the result of this study shows there are no statistically significant difference in Bishop score at first second assessment in the acupuncture group compared to control group. (P. > 0.05). While Bishop score at third & fourth as sement show statistically significant increase and high statistically significant increase in acupuncture group compared to control group respectively (. P. 0.042.., 0.002) (Table 4).

Table (1): Comparison between demographic data in control and acupuncture groups

	Control group N=40		**Acupuncture group N=40**		**Paired *t* test.**	
	Mean	SD	Mean	SD	t	Sig.
Age (years)	24.73	3.357	25.28	3.756	1.023	0.437
Gestational age (weeks)	39.21	0.847	38.68	0.736	0.978	0.562
BMI	26.40	1.25	26.23	1.58	0.756	0.432

Table (2): Comparison between mode of delivery in control and acupuncture groups

	Control group		**Acupuncture group**		**P. Value**	
	N	%	N	%	t	P
SVD	10	25%	22	55%	18	0.022
Induced vaginal delivery	13	32.5%	3	7.5%	19	0.01
CS	17	42.5%	15	37.5%	2	0.642
Total	40	100%	40	100%		

Table (3): Comparison between control and acupuncture groups as regard time from first visit of examination to delivery and duration of labor

	Control group N=40		**Acupuncture group N=40**		**Paired *t* test.**	
	Mean	SD	Mean	SD	t	P. value
Time from first visit of examination to start of active labor (days)	11 days		7 days		5.762	0.000
Duration of labour (hours)	8.538	1.036	6.320	0.872	0.984	0.437

Table (4): Comparison between control and acupuncture groups as regard Bishope score at first, second, third and fourth as sement

Bishop score	**Control group N=40**		**Acupuncture group N=40**		**Paired *t* test.**	
	Mean	SD	Mean	SD	t	Sig.
First assessment	3.72	1.043	3.42	0.982	0.975	0.273
Range	2 - 3		2 - 4			
Second assessment	14.24	1.749	12.83	1.915	0.975	0.273
Range	6 - 7		7 - 9			
Third assessment	8.35	1.873	11.37	2.637	2.835	0.042
Range	6 - 7		8 - 9			
Fourth assessment	10.38	2.035	12.58	2.826	2.835	0.002
Range	9 - 10		11 - 13			

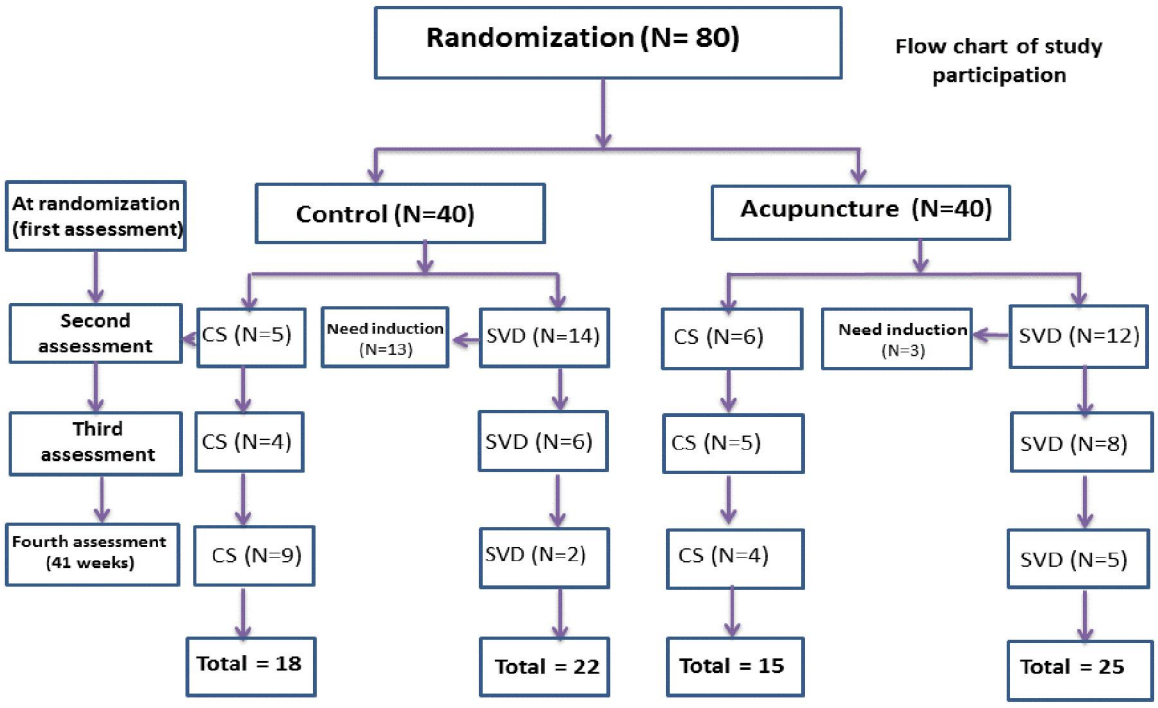

Figure (1): Flow diagram of study participation

4. Discussion

This study shows that there are no statistically significant difference as regard demographic data (Age, Gestational age and BMI) between acupuncture and control groups (P >0.05)**. Table (1)**

This study shows that there are statistically significant increased rate of spontaneous vaginal delivery and statistically significant decreased in rate of caesarian section in the acupuncture group compared to control group (P. < *0.05*). **Table (2)**.

This study agrees with **Citkovitz et al. (2009)** which revealed statically significant decrease rate of cesarean sections in acupuncture group compared to control group (7% vs. 20%) (p=0.004). **Harper et al. (2006)** agree also with this study that revealed statically significant increase in spontaneous vaginal delivery in the acupuncture group than in the control group. p. value (0.05).

On the other hand **Harper et al. (2006)** disagree with the present study as the rate of cesarean section decrease from 39% in the control group to 17% in acupuncture group but not reach statistical significance (p=0.07). They difference due to their sample size less than current study.

Also this study disagree with **Gaudernack et al. (2006**) They showed that no difference in rate of caesarean section between the acupuncture and standard care This difference because in their study mode of acupuncture is electrical while in the current study manual acupuncture used.

Also This study disagree with **Rabl et al. (2001**). Which showed that the rate of spontaneous labor improved from 50% in the control group to 70% in acupuncture group but not reach statistical significance (p=0.12). This difference due to in their study randomization of women started from gestational age 36weeks while in current study started from gestational age 38weeks till delivery.

This study shows that there is statistically significant decreased in rates of induced vaginal delivery. **Table (2)**.

This study agrees with **Harper et al. (2006)** that revealed statistically significant decrease in women need induction in acupuncture group compared to control group.

Also this study agree with **Gaudernack et al. (2006**) that showed statistically significant decrease in women need induction in acupuncture group compared to control group (9% vs. 21%) (p=0.018)

Citkovitz et al. (2009) disagree with this study in women need induction which shows no difference between the acupuncture and standard care. This difference as they use met analysis as control group in their study.

This study shows there is decrease in duration of labour in the acupuncture group compared to control group, but they do not reach statistical significance. (P. > 0.05)**. Table (3)**

This study agrees with **Harper et al. (2006)** which revealed that there is decrease in duration of labour in the acupuncture group cases compared to control group, but they do not reach statistical significance. P. value (0.36)

This study against **Gribel et al. (2011)**. Their study showed that there are increase in duration of labour in the acupuncture group cases compared to control group, but they do not reach statistical significance. P. value (0.3). This difference as they perform session every seven hours up to three identical sessions within 24 hours while in current study two sessions in one week.

This study shows that there is high statistically significant decreased in the time from first visit of examination to start of active labor in acupuncture group compared to control group (P <0.01). **Table (3)**

Harper et al. (2006) disagree with this study which show no difference between the acupuncture and standard care from enrollment to delivery. This difference due to in their study randomization of women started from gestational age 39weeks while in current study started from gestational age 38weeks till delivery. Unfortunately no available research can be offered with this result.

This study shows that there are no statistically significant difference in Bishop score at first second assessment in the acupuncture group compared to control group. (P. > 0.05). While Bishop score at third & fourth as sement show statistically significant increase and high statically significant increase in acupuncture group compared to control group respectively (. P. 0.042.., 0.002) **table (4)**

This study agree with **Rabl et al. (2001**) their study showed that at fourth as sement is high significant increase in the bishop score at of the acupuncture group cases compared to control group. P. value 0.004.

This study disagree with **Romer (2002**) that showed there is no significant difference increase in the bishop score at the acupuncture group cases compared to control group. from entry to delivery as he do his study on large sample size. Also this study difference from **Harper et al. (2006)** shows that no difference in bishope score from entry to delivery in both group. p value (0,28) This difference due to in their study randomization of women started from gestational age 39weeks while in current study started from gestational age 38weeks till delivery.

Conclusion:

This study clearly demonstrates that assessing the efficacy of acupuncture for the initiation of labor is feasible, as it decrease duration of labour and increase incidence of spontaneous vaginal delivery.

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