



Original Article

# Effects of Abdominal Breathing on Preterm Labor Anxiety

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## Abstract

**Purpose:** The purpose of this study was to explore the effects of abdominal breathing on relieving anxiety in women diagnosed with preterm labor. **Method:** This was a pilot study, which was based on a repeated pre-post experiment design without a control group. Seven patients with preterm labor who were admitted to Y university medical center, Seoul, Korea, participated in the experiment. They were under receiving ritodrine hydrochloride(Yutopa) as tocolytic therapy and did not have any other complications. The patients were taught abdominal breathing, which is a modified version of Mason's breathing technique. The experimental treatments were done 33 times from February 18 to June 19 in 2005. **Result:** After abdominal breathing, the average psychological anxiety level decreased significantly. The physical anxiety levels of preterm labor patients were measured by blood pressure, pulse, and skin temperature. After abdominal breathing, the average systolic and diastolic blood pressure decreased from 117.3mmHg to 107.6 mmHg ( $z=-3.85$ ,  $p<.001$ ) and from 67.3mmHg to 62.7 mmHg ( $z=-3.14$ ,  $p<.005$ ), respectively. The average

pulse rate also decreased from 97.2/min to 89.8/min ( $z=-4.76$ ,  $p<.001$ ). The average skin temperature increased from 94.0 to 94.9( $z=-4.80$ ,  $p<.001$ ). **Conclusion:** Abdominal breathing is effective for relieving anxiety of women diagnosed with preterm labor. This study, however, has been limited to short-term effects, and therefore further studies are required in order to examine the long-term effects of abdominal breathing.

Key words : Premature Labor, Breathing, Anxiety

40

가 가  
 , 37 1980 8.9%  
 2000 11.6% 가 (Morrison et al., 2004).

: 2006. 4. 11 1 : 2006. 5. 2 2 : 2006. 5. 22 3 : 2006. 6. 5 : 2006. 6. 9

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1981 7.3%, 1990 7.2%, 2001 7.2% 가 .

20 가 (KNSO, 2001),

60~80% (Goldenberg, 2002),

75% 가 가 Han(1995)

가 (Morrison et al., 2004). 1 . Yen Jaffe(1991)

45 ( 4 5 )가 (Morrison, 1990), 1 1 8 ,

(Park, 1992). 50% 20 ,

37 10 30 . Jacobson(1962)

(Williams Obstetrics, 1997).

. Benson(1975) (cited in Park, Lee, & Han, 2001)

가 가 ,

(tocolytic) 가 .

Jacobson

Goldenberg(2002) 가 (Janke, 1999) , 가

48 가 (Benson, Pircon, Strassner, Kirz Towers(1989) , 179 Beary, & Carol, 1974).

Guinn, Goepfert, Owen, Brumfield Hauth(1997) ,

1950 가 가 . Janke(1999)

가 107 가

(Goldenberg, 2002). 가

가 , 가

가 가?

(Han, 가 , 가

1995).

Norepinephrine ACTH (Gennaro, & Hennessy, 2003). ACTH Glucocorticoid

prostaglandin 1. 가

oxytocin

가 . Scale-Anxiety(VAS-A)

1 가 :

2 가 :

2-1. 가

2-2. 가

2-3. 가

2.

1)

20 37 5~8

2cm , 80% 가

Obstetrics, 1997), 20~37 10 가

30 가

2)

가 (Korean Medical Association, 2004), Mason(1985)

가

“ ” 1

3)

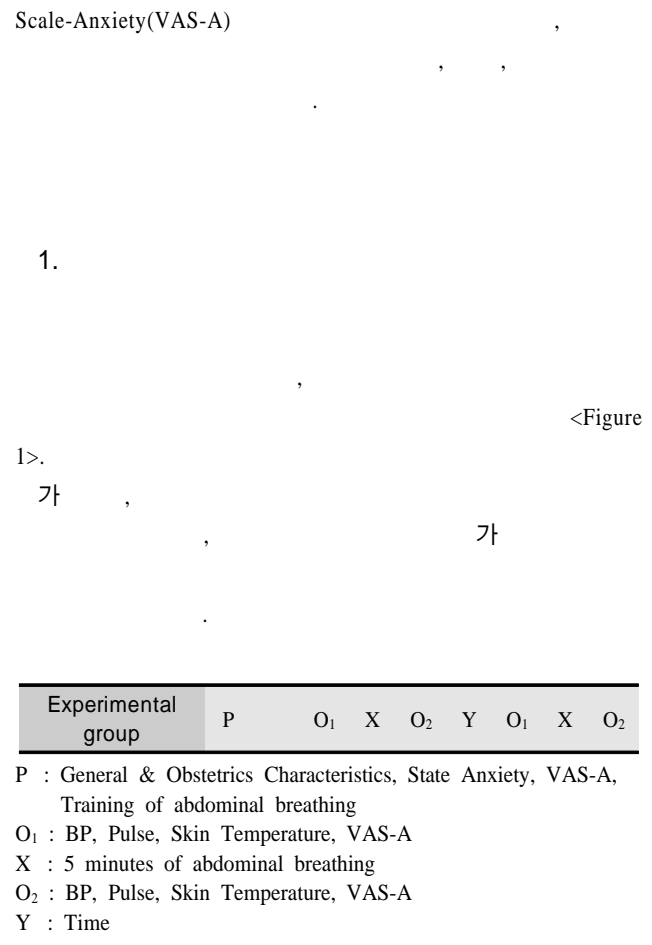
(Spielberger, 1976), 가

(Gift & Cahill, 1993). 가

Spielberger(1976) State Anxiety Inventory(SAI)

Kim Shin(1978)

Gift(1989) Visual Analog



<Figure 1> Research design

Spielberger(1976) State Anxiety Inventory(SAI) Mason(1985) 1 8  
 Kim Shin(1978) , 1 4 1 5  
 20 4 , 20 80 가 ,  
 가 가 . Kim  
 Shin(1978) Cronbach's  $\alpha$  .92 5 ( 25 )  
 , Cronbach's  $\alpha$  .90 ,  
 . 5  
 Gift(1989) Visual Analog Scale-Anxiety  
 (VAS-A) 20  
 Spielberger (State Anxiety 2)  
 Inventory- SAI) 2005 4 4 6 19 Y  
 , VAS-A 가 (Gift  
 1989). VAS-A 100mm “  
 ”, “ ”  
 , 가 가 SAI VAS-A  
 가 . Vogelsang(1988) 가 가  
 VAS-A SAI r=.82 .  
 2) , ,  
 (Yamasu, Japan) , 가 가  
 .  
 1  
 (Model SC911, China) ,  
 가 1 (°F) 5  
 . 가 1  
 . VAS-A  
 4.  
 Y Mason(1985) 1 8  
 , 가  
 1 6  
 , 가  
 1) 가 “ ”  
 가 , 1 (12  
 3 2005 ) , 5 ( 25 ) <Table 1>.  
 2 18 ~ 3 20 , ,

<Table 1> Treatment for 1 minute

	1st			2nd			3rd			4th			5th		
Respiration cycle	*	**	***	*	**	***	*	**	***	*	**	***	*	**	***
Time sequence(sec)	3	6	12	15	18	24	27	33	36	39	45	48	51	54	60
Lapsed time(sec)	3	3	6	3	3	6	3	3	6	3	3	6	3	3	6

\* : Inhalation    \*\* : Holding    \*\*\*: Expiration

<Table 2> Data collection procedure

Variables	Admission ~ HOD #2 General Characteristics Obstetric Characteristics, SAI VAS-A Training of abdominal breathing	HOD #3			HOD #4 ~ Yutopa stop Repeating the experimental set
		experimental set			
		pretest	treatment	posttest	
		VAS-A BP Pulse Skin-temperature	5 min abdominal breathing	VAS-A BP Pulse Skin-temperature	

Yutopa 7, 27, 32  
, 30, 3 (42.9%), 30, 4  
(57.1%) 가 6 (85.7%),  
<Table 2> 1 (14.3%), 5  
(71.4%), 2 (28.6%)  
5. 1 가 2 (28.6%), 2 가 2 (28.6%), 3 가 3  
(42.8%), 가 3 (42.9%), 1  
SPSS win. 12.0 program 가 4 (57.1%)  
Wilcoxon signed rank test, Spielberger  $\pm 3^{+6}$ , 30, 4 (57.1%), 30, 3 (42.9%)  
Gift VAS-A Spearman's rank  
correlation Cronbach's  
 $\alpha$  2)  
7, 33,  
4~5,  
1, 11,  
1. <Table 4>.  
24,  $35^{+2}$ ,  $29^{+4} \pm 2^{+6}$   
1) 가 13(39.4%), 10, 8 (24.2%), 7, 9  
(27.3%), 5, 2 (6.1%), 3, 1 (3.0%)  
<Table 3>.

<Table 3> General & obstetric characteristics of participants (N=7)

Characteristics	Criteria	f(%)	M ± SD	Range
Age(years)	< 30	3(42.9)	29.7 ± 1.8	27 ~ 32
	> 30	4(57.1)		
Occupation	no	6(85.7)		
	yes	1(14.3)		
Education status	high school	2(28.6)		
	college	5(71.4)		
Pregnancy (frequency)	1	2(28.6)		
	2	2(28.6)		
	3	3(42.8)		
Delivery (frequency)	0	3(42.9)		
	1	4(57.1)		
Gestation weeks	< 30	4(57.1)	$29^{+2} \pm 3^{+6}$	23 <sup>+5</sup> ~ 35
	> 30	3(42.9)		

<Table 4> Obstetric characteristics of experimental cases (F=33)

Variables	Criteria	f(%)	M ± SD	Range
Gestation weeks	< 30	14(42.4)	$29^{+4} \pm 2^{+6}$	24 ~ 35 <sup>+2</sup>
	> 30	19(57.6)		
Interval of uterine contraction	None	13(39.4)		
	10 mins	8(24.2)		
	7 mins	9(27.3)		
	5 mins	2( 6.1)		
	3 mins	1( 3.0)		

3) 가  
<Table 5>.  
Spielberger(1972) State Anxiety Inventory(SAI)  
32 67

(가 20~80) 50.9±12.1, Gift(1989)  
 Visual Analog Scale-Anxiety(VAS-A)  
 20 90 (가 0~100)  
 50.3±28.7, Spielberger  
 Gift  
 r=.66  
 (p=.104).

p<.005),  
 가 .  
 (2) 가 2 :  
 가 .  
 97.2±5.6 / , 89.8±4.6 /  
 8 / ,  
 (z=-4.76, p<.001).

<Table 5> Anxiety level of participants before experiment (N=7)

Variables	M ± SD	Range	r	P
SAI score (20 ~ 80)	50.9 ± 12.1	32 ~ 67	.66	.104
VAS-A score (0 ~ 100)	50.3 ± 28.7	20 ~ 90		

P-value : by Spearman rank correlation

2. 가

1) 1가 :  
 가 .

<Table 6>. VAS-A  
 36.1±21.5 ,  
 28.4±16.0  
 (z=-3.80, p<.001).

가 . 1가 .

<Table 6> Pre - post psychological anxiety by abdominal breathing (F=33)

Variable	Pretest M ± SD	Post - test M ± SD	Z	P
VAS-A score	36.1 ± 21.5	28.4 ± 16.0	-3.80	<.001

2) 2가 :  
 가 .

<Table 7>.

(1) 가 1 :  
 가 .

117.3±16.4mmHg ,  
 107.6±13.0mmHg (z=-3.85, p<.001),  
 67.3±10.6mmHg 62.7±9.4mmHg (z=-3.14,

(3) 가 3 :  
 가 .  
 94.0±1.1°F , 94.9±.9°F  
 , (z=-4.80, p<.001).

<Table 7> Pre - post physiological anxiety by abdominal breathing (F=33)

Variables	Pretest	Post - test	Z	P
	M ± SD	M ± SD		
Systolic BP	117.3 ± 16.4	107.6 ± 13.0	-3.85	<.001
Diastolic BP	67.3 ± 10.6	62.7 ± 9.4	-3.14	<.005
Pulse	97.2 ± 5.6	89.8 ± 4.6	-4.76	<.001
Skin Temperature	94.0 ± 1.1	94.9 ± .9	-4.80	<.001

가 .  
 .  
 , Zung(1971)  
 ,  
 가 . Gatchel  
 (1979) 가  
 가

32                      67                      가                      5  
50.86±12.14                      , Kim(1998)  
73                      47.6±12.2                      14  
VAS-A                      20                      90                      가                      Park (2001)  
50.3±28.7  
, SAI VAS-A                      r=.66  
(p=.104). SAI  
VAS-A                      Vogelsang(1988) Chlan(2004)                      Yu Song(2001)  
가                      가 가  
가                      SAI                      , “                      Lee(1990)  
” “                      “                      Kim, Song Choi(2000)  
” “                      ” “  
” “                      , VAS-A가 “  
” “                      ” “ ”  
20                      β-  
Spielberger                      ritodrine                      가  
76~80 /                      가  
r=.66                      8 /                      가 Kim (2000)  
36.3±21.5                      VAS-A                      가                      Kim (2000)                      가  
28.4±16.0                      (z=-3.80, p<.001)                      VAS-A                      가  
36.3±21.5                      가                      가                      가                      88.7°F  
89.9°F                      (Lee, 2000), Janke  
(1999)                      가                      가                      91.9°F                      93.7°F  
50.3±28.7                      가                      가                      가                      가  
48.6±30.8                      가                      가                      가                      가  
2-3                      가  
가                      가

가

가 pilot

SAI

가

2005 2 18 2005 6 19

Y

(Yutopa)

7

β-

33

Mason(1985)

1

8

, 1

6

SPSS win 12.0 program

, Wilcoxon signed rank test, Spearman's rank correlation

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