

# Healthy Evaluations of Breastfed Infants in Maternal Consumption with Chinese Herb-Enriched Diet

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Chinese herbs are traditional diet for postpartum women in many countries. However, the potential impact of maternal consumption with Chinese herb-enriched diet on nursing infants has not been well investigated. Our objective was to identify the association between health of breastfed infants and maternal diet with Chinese herbs. A total of 420 infants with exclusively breastfeeding at 25 to 45 days of age were enrolled into this prospective study. There was a decline of jaundice in infants of maternal diet with modified Si-wu-tang when compared to those without modified Si-wu-tang ( $p < 0.001$ ). In addition, infants of maternal diet with sesame oil chicken more often defecated ( $p = 0.004$ ). A combination of maternal consumption with modified Si-wu-tang, Sheng-hau-tang, *Eucommia ulmoides*, and sesame oil chicken was related to a decline of jaundice ( $p < 0.001$ ) and an increase of stool passage ( $p = 0.039$ ). There was no significant correlation of maternal diet with infant growth. The multivariate logistic regression analysis demonstrated greater risk of frequent stooling at maternal diet with sesame oil chicken and lower risk of jaundice at maternal diet with modified Si-wu-tang. In conclusion, there is a relationship between maternal consumption with Chinese herb-enriched diet and infant health at age of one month. The results suggest maternal intake with Chinese herb-enriched diet is safe for nursing infants. Maternal diet with modified Si-wu-tang may serve as an alternative strategy to prevent breast milk jaundice.

**Key words:** Breast milk, modified Si-wu-tang, Sheng-hau-tang, *Eucommia ulmoides*, sesame oil chicken, stool, jaundice

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## 1. Introduction

Chinese herbal medicines have been a traditional management for postpartum women in some countries [1]. These herbal supplements are part of traditional custom aimed at accelerating the recovery of puerperal mothers during one-month period. The commonly-used Chinese herbal diets include *Eucommia ulmoides*, Sheng-hau-tang, Si-wu-tang, and sesame oil chicken [2–4]. First, *Eucommia ulmoides* is ingested by postpartum women to enhance the convalescence of the uterus [2]. It is one of the oldest herbs used to treat many diseases in Asian population [5–7]. Second, Sheng-hau-tang is consumed to relieve the abdominal discomfort and eliminate the lochia [8]. The ingredients of Sheng-hau-tang consist of *Angelica sinensis*, *Ligusticum chuanxiong*, *Prunus persica*, *Zingiber officinale*, and *Glycyrrhiza uralensis*. Third, Si-wu-tang is used to regulate menstruation and relieve menstrual pain [9]. It is composed of *Angelica sinensis*, *Ligusticum chuanxiong*, *Rehmannia glutinosa*, and *Paeonia lactiflora* [10]. Fourth, sesame oil chicken is believed to benefit postpartum women by supplying protein intake and increasing peripheral circulation [11]. There are an increasing number of mothers consuming Chinese medicines during the first month after delivery for a ritual deemed beneficial to convalescing mothers [4,12].

Breast milk has been regarded as the best resource of nourishment for infants [13]. It's noteworthy that Chinese herbal medicines ingested by postpartum mothers may affect the health of breastfed infants. Thus extensive scientific studies to determine the therapeutic efficacy and potential harmful effects of the various herbal ingredients toward nursing infants are warranted. However, the impact of maternal intake with Chinese medicines on infant outcome was not well surveyed [14,15]. The current prospective study was conducted to evaluate the possible effect of maternal consumption with Chinese herb-enriched diet to breastfed infants at one month of age. The data provide clinical implications in infant care of maternal consumption with Chinese herb-enriched diet.

## 2. Methods

### 2.1. Study design

This prospective study involved exploratory

research conducted through examination of infant health and interviews with nursing mothers. Infants fed with breast milk at 25 to 45 days of age were eligible for enrollment in well-baby clinics of the Chang Gung Memorial Hospital at Taipei between January 2013 and August 2015. Those fed by either formula or combination of breast milk and formula were not enrolled into this study. In addition, infants with gestational age less than 34 weeks, birth weight less than 2000 grams, or illness (such as significant congenital anomaly) were excluded. Growth, stool pattern and jaundice examined in well-baby clinics were regarded as infant outcome. The Institutional Review Board of Chang Gung Memorial Hospital approved the study protocol (number 100-0226C). Informed consents were obtained from the mothers of enrolled infants.

### 2.2. Measures

Each infant had a transcutaneous bilirubin (TcB) measurement using a portable BiliCheck device (Spectrx Inc, Norcross, GA). The BiliCheck system averaged the spectra of five replicate measurements on the forehead to give a bilirubin estimate. Concurrent weight was measured to investigate the rate of weight gain. The devices for measuring the weight and TcB value were the same through the whole study period. Demographic data — including gender, delivery mode, birth weight and gestational age — were collected from birth records.

Two questions were asked from parents or guardians of enrolled infants.

2.2.1. Stool pattern: The stool pattern was determined by the frequency of stool output, which was classified into two categories for subsequent analysis: (1) more than four times per day; (2) four or fewer than four times per day.

2.2.2. Maternal diet: Intake of four traditional Chinese diets during the postpartum period was asked, including (1) *Eucommia ulmoides*, (2) Sheng-hau-tang, (3) modified Si-wu-tang (defined as a consumption of Si-wu-tang which was prescribed by traditional Chinese physicians or cooks), and (4) Sesame oil chicken (chicken flavored with sesame oil and rice wine). The other Chinese herbal medicines, foods, and beverages were not examined in this study.

### 2.3. Statistical analyses

The statistics were compiled using a commercially available program (SPSS 19.0 for Windows, SPSS Inc., Chicago, Illinois, USA). Cate-

gorical variables were analyzed using the chi-square test. For comparison between groups with quantitative variables, the null hypothesis that there was no difference between each group was tested by a one-way analysis of variance. A multivariate logistic regression model was used to assess the health risk of nursing infants in relation to maternal intake with Chinese herb-enriched diet by adjusting for possible confounders – including neonatal factors (gestational age, birth weight, delivery mode, and sex at birth) and maternal diets (*Eucommia ulmoides*, Sheng-hau-tang, modified Si-wu-tang, and Sesame oil chicken). Odds ratio (OR) and 95% confidence intervals (CI) were expressed after adjusting for the control variables. Significance was defined as  $p < 0.05$ .

### 3. Results

#### 3.1. Demographic information

A total of 420 infants fed by breast milk were enrolled into this study. Their demographic data were listed in Table 1. The majority was term infants (93.1%). Only a few infants (7.9%) had low birth weight (< 2500 g) or macrosomia ( $\geq 4000$  g). During the second visit at two months of age, no significant illness was detected among all participating infants.

**Table 1. Demographic data of enrolled infants (n=420).**

Birth data of infants	number	%
Gender		
Male	218	51.9
Female	202	48.1
Birth weight (g)		
2000 ~ 2499	25	6.0
2500 ~ 3999	387	92.1
4000 ~ 4200	8	1.9
Gestational age (w)		
34 ~ 36	29	6.9
37 ~ 42	391	93.1
Delivery mode		
Vaginal delivery	270	64.3
Cesarean section	150	35.7

#### 3.2. Maternal intake with Chinese herb-enriched

diet

The most common Chinese herb-enriched diet consumed by postpartum mothers was *Eucommia ulmoides* (90.0%), followed by Sesame oil chicken (85.5%), Sheng-hau-tang (65.2%), and modified Si-wu-tang (33.8%). Only 8 mothers (1.9%) did not consume any of four Chinese herb-enriched diets. The association between maternal intake with Chinese herb-enriched diet and infant health is shown in Table 2. There was a significant decline of jaundice (defined as a TcB value  $\geq 5$  mg/dL) in infants of maternal diet with modified Si-wu-tang than those without modified Si-wu-tang. Furthermore, infants of maternal diet with sesame oil chicken were more likely to have stool passage > 4 times per day than those without sesame oil chicken. There was no significant correlation of maternal diet with infant weight gain.

The most common combination of maternal intake with Chinese herb-enriched diet was sesame oil chicken, Sheng-hau-tang, and *Eucommia ulmoides* (33.1%), followed by a combination of modified Si-wu-tang, sesame oil chicken, Sheng-hau-tang, and *Eucommia ulmoides* (21.7%), and a combination of sesame oil chicken and *Eucommia ulmoides* (16.2%). The other combinations were not common (less than 10%).

Infants with maternal intake of a combination of modified Si-wu-tang, sesame oil chicken, Sheng-hau-tang, and *Eucommia ulmoides* were more likely to have stool passage > 4 times per day than those without such combination. In addition, they were more likely to have TcB value < 5 mg/dL than those without this combination regimen. Furthermore, there was no significant difference in the weight gain between .

#### 3.3. Risk assessment by a multivariate logistic regression model

A multivariate logistic regression model was used to assess the risk of maternal intake with Chinese herb-enriched diet on infant health (Table 3). After adjusting for possible confounders, the results showed a greater risk of stool passage > 4 times per day in infants of maternal consumption with sesame oil chicken carried. Furthermore, maternal diet with modified Si-wu-tang carried a lower risk of breast milk jaundice. There was no significant correlation of maternal intake with infant weight gain.

**Table 2. Association between maternal intake with Chinese herb-enriched diet and outcome of nursing infant at one month of age (n=420).**

Infants at one month of age	Weight gain (g/d)			Stool frequency (time/d)			Jaundice (TcB $\geq$ 5 mg/dL)		
	$\leq 30$ n (%)	$> 30$ n (%)	p value	$\leq 4$ n (%)	$> 4$ n (%)	p value	Yes n (%)	No n (%)	p value
(A) <i>Eucommia ulmoides</i>			0.189			0.922			0.718
Ingestion	98 (93.3)	280 (88.9)		177 (89.8)	201 (90.1)		218 (90.5)	160 (89.4)	
None	7 (6.7)	35 (11.1)		20 (10.2)	22 (9.9)		23 (9.5)	19 (10.6)	
(B) Sheng-hau-tang			0.906			0.470			0.713
Ingestion	69 (65.7)	205 (65.1)		125 (63.5)	149 (66.8)		159 (66.0)	115 (64.2)	
None	36 (34.3)	110 (34.9)		72 (36.5)	74 (33.2)		182 (34.0)	64 (35.8)	
(C) modified Si-wu-tang			0.404			0.341			<0.001
Ingestion	32 (30.5)	110 (34.9)		62 (31.5)	80 (35.9)		57 (23.7)	85 (47.5)	
None	73 (69.5)	205 (65.1)		135 (68.5)	143 (64.1)		184 (76.3)	94 (52.5)	
(D) Sesame oil chicken			0.936			0.004			0.779
Ingestion	90 (85.7)	269 (85.4)		158 (80.2)	201 (90.1)		207 (85.9)	152 (84.9)	
None	15 (14.3)	46 (14.6)		39 (19.8)	22 (9.9)		34 (14.1)	27 (15.1)	
Ingestion of (A) + (B) + (C) + (D)			0.945			0.039			<0.001
Yes	23 (21.9)	68 (21.6)		34 (17.3)	57 (25.6)		34 (14.1)	57 (31.8)	
No	82 (78.1)	247 (78.4)		163 (82.7)	166 (74.4)		207 (85.9)	122 (68.2)	

**Table 3. Risk assessment of 4 commonly used Chinese regimens by multivariate logistic regression analysis (n=420).**

Maternal diet	p value	Adjusted OR	95% CI
<i>Eucommia ulmoides</i>			
Weight gain $\leq 30$ g/d	0.161	1.867	0.780 – 4.469
Stool frequency $> 4$ times/d	0.778	0.908	0.465 – 1.775
Jaundice (TcB $\geq 5$ mg/dL)	0.560	1.227	0.617 – 2.441
Sheng-hau-tang			
Weight gain $\leq 30$ g/d	0.913	1.028	0.620 – 1.682
Stool frequency $> 4$ times/d	0.908	1.025	0.670 – 1.570
Jaundice (TcB $\geq 5$ mg/dL)	0.248	1.301	0.832 – 2.034
modified Si-wu-tang			
Weight gain $\leq 30$ g/d	0.371	0.798	0.486 – 1.309
Stool frequency $> 4$ times/d	0.565	1.133	0.741 – 1.733
Jaundice (TcB $\geq 5$ mg/dL)	< 0.001	0.337	0.218 – 0.523
Sesame oil chicken			
Weight gain $\leq 30$ g/d	0.641	1.173	0.601 – 2.288
Stool frequency $> 4$ times/d	0.014	2.096	1.158 – 3.792
Jaundice (TcB $\geq 5$ mg/dL)	0.441	1.268	0.693 – 2.322

#### 4. Discussion

The current study depicts the association between maternal intake with Chinese herb-enriched diet and outcome of otherwise healthy infants at age of one month. We used weight gain, jaundice, and stool pattern as indices of infant outcome because they are common problems among apparently well infants fed with breast milk [16,17]. Our study selected TcB value  $\geq 5$  mg/dL as jaundice since visible jaundice is approximately equal to a bilirubin value of 5 mg/dL [18]. In addition, we classified defecation by 4 times per day because of frequent stooling in breastfed infants at this age [19,20]. Furthermore, we did not include infants fed with a combination of formula and breast milk since there is a dose-dependent effect of breast milk on infant health [14].

In our study, 98.1% of women consumed at least one Chinese herb-enriched diet during the postpartum period. The findings indicate that oral supplementation of certain Chinese herb-enriched diet is very popular for convalescing mothers during the postpartum period [1]. Our data demonstrated a significant relationship between maternal ingestion with Chinese herb-enriched diet and infant health. Administration of traditional Chinese diets to nursing mothers may affect infant jaundice and stool pattern. To our knowledge, this is the first study to investigate the relationship between maternal intake with Chinese herb-enriched diet and health of nursing infants.

Prolonged jaundice, defined as visible jaundice beyond 14 days, is the most commonly-evaluated condition of well infants [21,22]. It is associated with a variety of physiologic and pathologic conditions. The vast majority of prolonged jaundice cases are related to breast feeding, also known as breast milk jaundice. In infants with severe jaundice, brief interruption of breast feeding may be necessary [23]. Nevertheless, none was recommended to cease breast feeding in the current study. Furthermore, we demonstrated a decline of breast milk jaundice in infants of maternal diet with modified Si-wu-tang. Our previous study showed a reduction of breast milk jaundice in infants of maternal intake with Chinese herbal herb-enriched diet [14]. The present survey has further extended the inquiry by identifying a correlation of breast milk jaundice with modified Si-wu-tang. In contrast, we did not find a significant association of jaundice with Sheng-hau-tang.

Accordingly, we suggest the impact of modified Si-wu-tang on breast milk jaundice is derived from its two components (*Rehmannia glutinosa* and *Paeonia lactiflora*) because the other two components of Si-wu-tang (*Angelica sinensis* and *Ligusticum chuanxiong*) are also present in Sheng-hau-tang. One would question the causal relationship between maternal intake and breast milk jaundice. Since almost universal mothers consumed herb-enriched diet in this study, we believe they did not worry the impact of their diet on infant jaundice. Further studies are needed to clarify the mechanism of Si-wu-tang on the metabolism of bilirubin.

The contents of feeding milk have been proposed to alter the stool pattern [24,25]. Since breast milk is not a homogeneous matrix, there is a wide range of variations in the frequency of stooling among breastfed infants [26,27]. Therefore, it's not surprising that maternal diet could affect infant defecation. Our findings show an increase of stool frequency in maternal ingestion with sesame oil chicken, which is always flavored with rice alcohol [3]. Thus we speculate that sesame oil or alcohol may serve as contributors to frequent stooling. The possible mechanism may be an activation of gastro-colic reflex after ingestion of certain foods [28].

Some methodological issues should be cautiously interpreted in this study. First, this prospective study was designed as an observational cohort. Maternal diet was measured by self-reports. We did not determine the dosage of Chinese herb-enriched diet because the mothers did not know how much amount was consumed. Second, we evaluated infant health at age of one month. Further studies are necessary to assess the long-term health risk for infants nursed by mothers who ingest Chinese herb-enriched diet.

In conclusion, this study aimed at verifying the possible impact of 4 Chinese regimens consumed by postpartum women on the health of their nursing infants. There are some critical findings in this study. First, infants of maternal diet with sesame oil chicken more often defecated. Second, maternal consumption with modified Si-wu-tang carried lower risk of breast milk jaundice. Third, maternal consumption with Chinese herb-enriched diet did not affect infant growth. In conclusion, we have identified potential relationship between maternal intake with certain Chinese herb-enriched diet and the health of breastfed infants. Maternal administration of Chinese herb-enriched diet may have pharmacological substances and

therefore multiple actions on their nursing infants. The results suggest Chinese herb-enriched diet consumed by mother should be safe for breastfed infants. Our data provide clinical implication for a therapeutic strategy to prevent breast milk jaundice.

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### Competing Interests

The authors declare that they have no competing interests.

### References

1. Chuang CH, Chang PJ, Hsieh WS, Tsai YJ, Lin SJ, Chen PC. Chinese herbal medicine use in Taiwan during pregnancy and the postpartum period: a population-based cohort study. *Int. J. Nurs. Stud.*, 46:787–795, 2009.
2. Ho M, Li TC, Su SY. The association between traditional Chinese dietary and herbal therapies and uterine involution in postpartum women. *Evid. Based Complement. Alternat. Med.*, 2011:918291, 2011.
3. Chien YC, Huang YJ, Hsu CS, Chao JC, Liu JF. Maternal lactation characteristics after consumption of an alcoholic soup during the postpartum 'doing-the-month' ritual. *Public Health Nutr.*, 12:382–388, 2009.
4. Chang PJ, Lin CC, Chen YC, Chuang CH, Tseng YC, Hsieh WS, Lin SJ, Chen PC. Use of herbal dietary supplement si-wu-tang and health-related quality of life in postpartum women: a population-based correlational study. *Evid. Based Complement. Alternat. Med.*, 2013:790474, 2013.
5. Pan Y, Niu Y, Li C, Zhai Y, Zhang R, Guo X, Mei Q. Du-zhong (*Eucommia ulmoides*) prevents disuse-induced osteoporosis in hind limb suspension rats. *Am. J. Chin. Med.*, 42:143–155, 2014.
6. Lang C, Liu Z, Taylor HW, Baker DG. Effect of *Eucommia ulmoides* on systolic blood pressure in the spontaneous hypertensive rat. *Am. J. Chin. Med.*, 33:215–230, 2005.
7. Li Y, Han C, Wang J, Xiao W, Wang Z, Zhang J, Yang Y, Zhang S, Ai C. Investigation into the mechanism of *Eucommia ulmoides* Oliv. based on a systems pharmacology approach. *J. Ethnopharmacol.*, 151:452–460, 2014.
8. Chang PJ, Tseng YC, Chuang CH, Chen YC, Hsieh WS, Hurng BS, Lin SJ, Chen PC. Use of Sheng-Hua-Tang and health-related quality of life in postpartum women: a population-based cohort study in Taiwan. *Int. J. Nurs. Stud.*, 47:13–19, 2010.
9. Yeh LL, Liu JY, Lin KS, Liu YS, Chiou JM, Liang KY, Tsai TF, Wang LH, Chen CT, Huang CY. A randomised placebo-controlled trial of a traditional Chinese herbal formula in the treatment of primary dysmenorrhoea. *PLoS One*, 2:e719, 2007.
10. Lee SE, Oh H, Yang JA, Jo SK, Byun MW, Yee ST, Kim SH. Radioprotective effects of two traditional Chinese medicine prescriptions: si-wu-tang and si-jun-zi-tang. *Am. J. Chin. Med.*, 27:387–396, 1999.
11. Liu-Chiang CY. Postpartum worries: an exploration of Taiwanese primiparas who participate in the Chinese ritual of tso-yueh-tzu. *Matern. Child Nurs. J.*, 23:110–122, 1995.
12. Chien YC, Liu JF, Huang YJ, Hsu CS, Chao JC. Alcohol levels in Chinese lactating mothers after consumption of alcoholic diet during postpartum "doing-the-month" ritual. *Alcohol*, 37:143–150, 2005.
13. Chiou ST, Chen LC, Yeh H, Wu SR, Chien LY. Early skin-to-skin contact, rooming-in, and breastfeeding: a comparison of the 2004 and 2011 National Surveys in Taiwan. *Birth*, 41:33–38, 2014.
14. Weng YH, Chiu YW, Cheng SW. Breast milk jaundice and maternal diet with chinese herbal medicines. *Evid. Based Complement. Alternat. Med.*, 2012:150120, 2012.
15. Sim TF, Sherriff J, Hattingh HL, Parsons R, Tee LB. The use of herbal medicines during breastfeeding: a population-based survey in Western Australia. *BMC Complement. Alternat. Med.*, 13:317, 2013.
16. Weaver LT, Ewing G, Taylor LC. The bowel habit of milk-fed infants. *J. Pediatr. Gastroenterol. Nutr.*, 7:568–571, 1988.
17. Weng YH, Chiu YW, Cheng SW, Hsieh MY. Risk assessment for adverse outcome in term and late preterm neonates with bilirubin values of 20 mg/dL or more. *Am. J. Perinatol.*, 28:405–412, 2011.
18. Kramer LI. Advancement of dermal icterus

- in the jaundiced newborn. *Am. J. Dis. Child.*, 118:454-458, 1969.
19. Quinlan PT, Lockton S, Irwin J, Lucas AL. The relationship between stool hardness and stool composition in breast- and formula-fed infants. *J. Pediatr. Gastroenterol. Nutr.*, 20:81-90, 1995.
  20. den Hertog J, van Leengoed E, Kolk F, van den Broek L, Kramer E, Bakker EJ, Bakker-van Gijssel E, Bulk A, Kneepkens F, Benninga MA. The defecation pattern of healthy term infants up to the age of 3 months. *Arch. Dis. Child. Fetal Neonatal Ed.*, 97:F465-470, 2012.
  21. Weng YH, Chiu YW. Spectrum and outcome analysis of marked neonatal hyperbilirubinemia with blood group incompatibility. *Chang Gung Med. J.*, 32:400-408, 2009.
  22. Cheng SW, Chiu YW, Weng YH. Etiological analyses of marked neonatal hyperbilirubinemia in a single institution in Taiwan. *Chang Gung Med. J.*, 35:148-154, 2012.
  23. Preer GL, Philipp BL: Understanding and managing breast milk jaundice. *Arch. Dis. Child. Fetal Neonatal Ed.*, 96:F461-466, 2011.
  24. Buitter HD, Dijkstra SS, Oude Elferink RF, Bijster P, Woltil HA, Verkade HJ. Neonatal jaundice and stool production in breast- or formula-fed term infants. *Eur. J. Pediatr.*, 167:501-507, 2008.
  25. Hyams JS, Treem WR, Etienne NL, Weirnerman H, MacGilpin D, Hine P, Choy K, Burke G. Effect of infant formula on stool characteristics of young infants. *Pediatrics*, 95:50-54, 1995.
  26. Steer CD, Emond AM, Golding J, Sandhu B. The variation in stool patterns from 1 to 42 months: a population-based observational study. *Arch. Dis. Child.*, 94:231-233, 2009.
  27. Tunc VT, Camurdan AD, Ilhan MN, Sahin F, Beyazova U. Factors associated with defecation patterns in 0-24-month-old children. *Eur. J. Pediatr.*, 167:1357-1362, 2008.
  28. Fontana M, Bianchi C, Cataldo F, Conti Nibali S, Cucchiara S, Gobio Casali L, Iacono G, Sanfilippo M, Torre G. Bowel frequency in healthy children. *Acta Paediatr. Scand.*, 78:682-684, 1989.

## 母親於哺乳期中藥食療之新生兒健康評估

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在許多國家，有非常多的婦女在生產後服用中藥。但母親服用這些中藥的同時又哺餵母乳，是否會對嬰兒造成影響，目前卻無人研究。本研究評估母親於哺乳期中藥食療與嬰兒健康之關聯性，研究對象為哺餵母乳之嬰兒，年紀為 25 至 45 天大，共收案 420 位嬰兒。結果顯示，比起母親沒有服用四物湯加減（modified Si-wu-tang）之嬰兒，母親服用四物湯加減之嬰兒較少有黃疸（ $p=0.001$ ）。母親服用麻油雞之嬰兒有較頻繁之大便次數（ $p=0.004$ ）。母親於產後曾併用四物湯加減、麻油雞、杜仲、生化湯者有較少之黃疸（ $p<0.001$ ）及較多之大便次數（ $p=0.039$ ）。母親服用中藥與嬰兒生長並無關連。多變相邏輯式回歸模式分析結果顯示母親服用四物湯加減之嬰兒較少有黃疸，母親服用麻油雞之嬰兒有較多之大便次數。本研究結論為母親中藥食療與嬰兒健康有關聯性，結果認為母親於哺乳期中藥食療對嬰兒健康是安全的，母親於產後服用四物湯加減可考慮為降低母乳性黃疸之一個另類療法。

**關鍵字：**母乳、四物湯加減、麻油雞、杜仲、生化湯、大便、黃疸、中藥食療

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