香港社會醫學學院
HONG KONG COLLEGE OF COMMUNITY MEDICINE
founder College of the Hong Kong Academy of Medicine
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ADMINSTRATIVE MEDICINE

Part I Examination

Tuesday 10 June 2014
17:30 – 19:00 (1½ hours)

Paper IIB

Candidates must answer all parts of this questions

Style, clear grammatical English and legibility will be taken into consideration by the Examiners. Answers should be written in a form appropriate to the audience specified in the question.
Weighting of marks for each part of the question is shown in parenthesis.

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Data for this paper has been extracted from Tarrant, M; Kwok, MK; Lam, TH; Leung, GM and Schooling, CM. "Breast-feeding and childhood hospitalizations for infections." Epidemiology, 2010, v. 21 n. 6, p. 847-854.

***Background**: Infectious disease is a leading cause of morbidity and hospitalization for infants and children. During infancy, breastfeeding protects against infectious diseases, particularly respiratory infections, gastrointestinal infections, and otitis media. Little is known about the longer-term impact of breastfeeding on infectious disease in children.*

***Methods**: We investigated the relationship between infant feeding and childhood hospitalizations from respiratory and gastrointestinal infections in a population-based birth cohort of 8327 children born in 1997 and followed for 8 years. The main outcomes were public hospital admissions for respiratory infections, gastrointestinal infections, and all infectious diseases. Cox regression was used to assess time to first hospitalization.*

***Results**: Breastfeeding only (no formula-feeding) for 3 or more months was associated with a lower risk of hospital admission in the first 6 months of life for respiratory infections (hazard ratio = 0.64 [95% confidence interval 0.42–0.97]), gastrointestinal infections (0.51 [0.25–1.05]), and any infection (0.61 [0.44–0.85]), adjusted for sex, type of hospital at birth, and household income. Partial breastfeeding (both breast-feeding and formula-feeding) in the first 3 months also reduced hospitalizations from infections but with smaller effect sizes. Beyond 6 months of age, there was no association between breast-feeding status at 3 months and hospitalization for infectious disease.*

***Conclusions**: Giving breast milk and no formula for at least 3 months substantially reduced hospital admissions for many infectious diseases in the first 6 months of life, when children are most vulnerable.*

QUESTION CONTINUES

Table 1

TABLE 1. Characteristics by Breast-feeding Status for 7781 Children From Hong Kong's "Children of 1997" Birth Cohort

Characteristics	No.	Breast-feeding Status in First 3 Months: Never Breast-fed (n = 4439) %	Partially Breast-fed[a] (n = 2851) %	Breast Milk Only[b] (n = 491) %
Sex				
Female	3685	47	47	54
Male	4096	53	53	46
Birth weight (g)				
<2500	395	5	5	4
2500–2999	1870	24	25	23
3000–3499	3650	47	47	48
3500–3999	1602	20	21	23
≥4000	263	4	3	3
Gestational age (weeks)				
≤36	408	5	5	4
37	608	9	7	8
38	1665	22	21	18
39	2228	29	29	28
40	1832	23	25	26
41	816	10	11	11
≥42	215	3	2	5
Small-for-gestational age status				
Non-SGA	7042	90	92	89
SGA	729	10	8	11
Mother's age at delivery (years)				
≤24	948	13	11	13
25–29	2393	32	30	35
30–34	2913	37	40	33
≥35	1384	18	18	19
Mode of delivery				
Natural labor	4327	54	58	71.0
Assisted natural labor	1268	16	19	14
Caesarean	2045	30	24	16
Birth order				
1st	3615	44	53	41
2nd	3179	44	38	43
≥3rd	853	12	9	16
Infant's pre- and postnatal secondhand smoke exposure				
No prenatal and no postnatal	2091	27	29	32
Occasional nonparental prenatal	2393	30	36	26
Daily nonparental prenatal	276	4	4	3
Father occasional smoker	745	10	9	12
Father daily smoker	1507	21	17	24
Nonparental postnatal only	139	2	2	2
Mother smoked during pregnancy or postpartum	389	7	3	2
Highest parental education (grade)[c]				
9	2326	33	24	42
10–11	3272	47	39	36
12	2052	21	37	22
Type of hospital during delivery				
Public	5573	70	70	93
Private	2208	30	30	8
Highest parental occupation[c]				
I (professional)	1684	20	32	18
II (managerial)	1096	16	17	14
IIINM (nonmanual skilled)	2010	32	27	20
IIIM (manual skilled)	1177	19	13	24
VI (semi-skilled)	710	11	9	15
V (unskilled)	237	3	3	8
Household income per capita in quintiles (mean ± SD) (HK$)[d]				
1st ($1749 ± 420)	1418	18	16	30
2nd ($2851 ± 325)	1427	19	16	26
3rd ($4366 ± 557)	1402	20	16	14
4th ($6829 ± 884)	1392	18	19	9
5th ($14958 ± 15724)	1420	15	25	10

[a]Both breast milk and formula were given in the first 3 months (regardless of other liquids or solid foods).
[b]The only milk given in the first 3 months was breast milk (regardless of other liquids or solid foods).
[c]Education and occupation, respectively, of whichever parent had the highest educational attainment or the highest occupation category.
[d]US$1 = HK$7.8.

QUESTION CONTINUES

Table 2

TABLE 2. Association of Breast-feeding Status in First 3 Months With First Hospitalization by Age Group and Cause

Age Group	Breast-feeding	Respiratory Infections HR (95% CI)[a]	Gastrointestinal Infections HR (95% CI)[a]	Other Infections HR (95% CI)[a]	Any Infection HR (95% CI)[a]	Accidents HR (95% CI)[a]
0–8 years	Never breast-fed[b]	1.00	1.00	1.00	1.00	1.00
	Partially breast-fed[c]	1.03 (0.94–1.13)	1.07 (0.93–1.23)	0.97 (0.84–1.12)	0.98 (0.91–1.06)	1.01 (0.85–1.21)
	Breast milk only[d]	0.96 (0.81–1.15)	1.10 (0.85–1.41)	1.02 (0.78–1.33)	0.96 (0.83–1.12)	0.96 (0.69–1.34)
0–5.9 months	Never breast-fed[b]	1.00	1.00	1.00	1.00	1.00
	Partially breast-fed[c]	0.79 (0.64–0.97)	0.83 (0.61–1.15)	0.89 (0.67–1.18)	0.80 (0.69–0.94)	0.96 (0.47–1.94)
	Breast milk only[d]	0.64 (0.42–0.97)	0.51 (0.25–1.05)	0.58 (0.30–1.10)	0.61 (0.44–0.85)	2.15 (0.79–5.81)
6–23.9 months	Never breast-fed[b]	1.00	1.00	1.00	1.00	1.00
	Partially breast-fed[c]	1.12 (0.97–1.28)	1.09 (0.89–1.35)	0.89 (0.72–1.11)	1.05 (0.95–1.17)	0.97 (0.70–1.36)
	Breast milk only[d]	0.98 (0.76–1.28)	1.14 (0.78–1.67)	1.00 (0.67–1.50)	0.98 (0.80–1.20)	0.96 (0.52–1.76)
2–4.9 years	Never breast-fed[b]	1.00	1.00	1.00	1.00	1.00
	Partially breast-fed[c]	1.10 (0.95–1.27)	1.12 (0.88–1.43)	1.15 (0.90–1.47)	1.10 (0.98–1.24)	0.87 (0.66–1.16)
	Breast milk only[d]	1.00 (0.75–1.31)	1.22 (0.79–1.87)	1.20 (0.77–1.86)	1.06 (0.85–1.32)	0.70 (0.39–1.23)
5–8 years	Never breast-fed[b]	1.00	1.00	1.00	1.00	1.00
	Partially breast-fed[c]	1.01 (0.77–1.34)	1.06 (0.69–1.63)	0.77 (0.48–1.22)	1.01 (0.82–1.25)	1.27 (0.91–1.75)
	Breast milk only[d]	1.04 (0.62–1.76)	1.45 (0.71–2.97)	1.77 (0.92–3.42)	1.33 (0.93–1.91)	1.09 (0.58–2.05)

[a]Adjusted for sex, type of hospital at birth, and household income per capita (quintiles).
[b]Reference category.
[c]Both breast milk and formula were given in the first 3 months (regardless of other liquids or solid foods).
[d]The only milk given in the first 3 months was breast milk (regardless of other liquids or solid foods).

QUESTION CONTINUES

1. a. From the data provided in Table 1, what trends can you observe? Please list 3.

(6 marks; 2 marks each)

b (i) Can you conclude that a causative relationship exists between trends observed in Question 1a) and breastfeeding patterns in Hong Kong, based on the data provided in Table 1?

(2 marks)

(ii) Why or why not? (2 marks)

(iii) List 5 criteria from Hill's criteria for causation, which is used to determine causality in epidemiological studies.

(10 marks; 2 marks each)

2. Table 2 presents the hazard ratios for time to first hospital admission by breastfeeding status for each outcome within each age range, adjusted for sex, type of birth hospital, and household per capita income.

What conclusions can you draw about breastfeeding from data presented in this table respectively? Please list 5.

(20 marks; 4 marks each)

3. Write a policy brief to the Secretary for Food and Health to indicate whether breastfeeding should be encouraged in Hong Kong and what actions should be considered, on the basis of these findings.

(60 marks)

END OF PAPER

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