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= Abstract =

Adverse Events Associated with MMR Vaccination in Korea - Prospective Study Using Telephone Surveillance Method -

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Purpose : Adverse events(AE) associated with vaccination have not been systematically monitored in Korea. But since 1994, several deaths after inactivated mouse brain derived Japanese encephalitis vaccine injection arouse the safety problem of immunization in the public, and a evaluation of vaccination program including the effectiveness and safety problem had been started. We have been using MMR vaccine containing Japanese mumps vaccine strains, which are known to be associated with the high rate of adverse events including aseptic meningitis, for the last decade.

Methods : We conducted a prospective study of vaccine adverse events associated with MMR vaccine through a tracking system using telephone calls. We followed up 7,594 cases of MMR vaccinees.

Results : Reported adverse events included fever, couvulsion, parotitis, and aseptic meningitis. Nine cases of parotitis and seven cases of aseptic meningitis were recognized during follow up period. The incidence of both parotitis and aeptic meningitis was $85.1/10^5$, for Urabe mumps strain. For Hoshino strain, the incidence of parotitis and aseptic meningitis was $158.0/10^5$ and $94.8/10^5$, respectively.

Conclusions : The incidence of adverse events was to be a higher than that of natural infection in Korea and was comparable to the results of studies done in other countries.

Key Words : Adverse events, MMR vaccination, Parotitis, Aseptic meningitis, Prospective study

* 1999

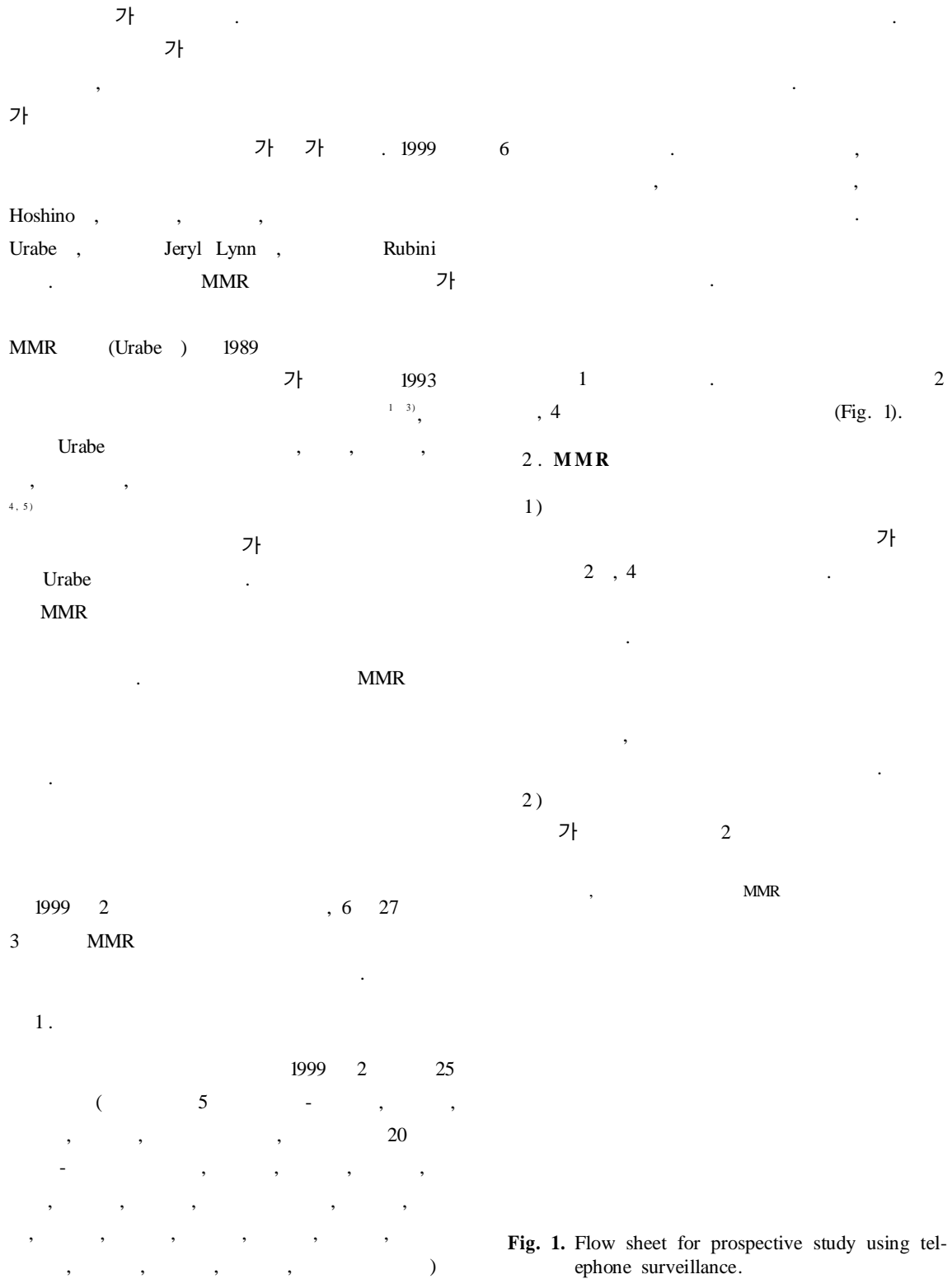


Fig. 1. Flow sheet for prospective study using telephone surveillance.

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Table 1. MMR Vaccine Used in Public Health Center

| | Location | Mumps strain and Distributor |
|------------------|-------------------------|------------------------------|
| Seoul | 1. Seocho-Gu | Urabe(Dongshin Pharm.) |
| | 2. Kwangjin-Gu | Hoshino(Green Cross Co.) |
| | 3. Kangdong-Gu | Hoshino(Green Cross Co.) |
| | 4. Songpa-Gu | Hoshino(Green Cross Co.) |
| | 5. Songdong-Gu | Hoshino(Green Cross Co.) |
| Kyonggi Province | 6. Ansung | Urabe(Korea Vaccine Co.) |
| | 7. Kweunsun-Gu, Suwon | Urabe(Korea Vaccine Co.) |
| | 8. Dukyang-Gu, Koyang | Urabe(Dongshin Pharm.) |
| | 9. Kwachon | Urabe(Dongshin Pharm.) |
| | 10. Hanam | Urabe(Boryung Pharm.) |
| | 11. Kuri | Urabe(Boryung Pharm.) |
| | 12. Gwangju | Urabe(Boryung Pharm.) |
| | 13. Manan-Gu, Anjang | Urabe(Boryung Pharm.) |
| | 14. Dongan-Gu, Anjang | Urabe(Boryung Pharm.) |
| | 15. Kwanmyong | Urabe(Boryung Pharm.) |
| | 16. Shihung | Urabe(Boryung Pharm.) |
| | 17. Yangju | Hoshino(Green Cross Co.) |
| | 18. Hwasung | Hoshino(Green Cross Co.) |
| | 19. Ichon | Hoshino(Green Cross Co.) |
| | 20. Pyongtaek | Hoshino(Green Cross Co.) |
| | 21. Sujung-Gu, Songnam | Hoshino(Green Cross Co.) |
| | 22. Gunpo | Hoshino(Green Cross Co.) |
| | 23. Kimpo | Hoshino(Green Cross Co.) |
| | 24. Jungwon-Gu, Songnam | Hoshino(Green Cross Co.) |
| | 25. Bundang-Gu, Songnam | Rubini(CheilJedang) |

1 Urabe 11.9%(416/3,494), Hoshino 11.3%(356/3,139), Rubini 5.9%(18/305) (P>0.05). 2 Urabe 3.9%(140/3,553), Hoshino 4.6%(147/3,191), Rubini 0.3%(1/305) (P<0.02) (Table 3). 2) 가 21 0.3%(21/7,289) (3) 0.07%(5), 0.12%(8), 가 0.1%(7) (1) MMR 가 4 0.07% Urabe 가 3 0.08%(3/3,553) Hoshino 가 2 0.06%(2/3,191) Rubini 가 MMR 가 8 27 14.8 13 15 12 27 13.8 5 20 6 4 MMR (Table 4). 13 31 18.5 2 (2) MMR 가 4 8 (0.12%) 5 6 MMR 가 6 31 PCR 가 7 44 20.8

Table 4. 5 Reported Cases Who had Convulsion after MMR Vaccination

| Name | Age(mon.) | Interval between Vaccination and Convulsion(days) | Parotid Swelling | Meningeal Irritation Sign | Fever | Vomiting | Strain | Result |
|------|-----------|---|------------------|---------------------------|-------|----------|---------|----------|
| PSH | 14 | 10 | No | No | No | Yes | Hoshino | Recoverd |
| EJS | 13 | 27 | No | No | Yes | Yes | Hoshino | Recoverd |
| JWK | 16 | 8 | No | No | Yes | Yes | Urabe | Recoverd |
| KSM | 14 | 17 | No | No | Yes | Yes | Urabe | Recoverd |
| KJH | 14 | 12 | No | No | Yes | No | Urabe | Recoverd |

(Table 6). MMR

| MMR | Age (mon.) | Interval between Vaccination and Parotitis(days) | Convulsion | Patotid Swelling | Meningeal Irritation Sign | Fever | Rash | Neck Stiffness | Strain | Result |
|------|------------|--|------------|------------------|---------------------------|-------|------|----------------|---------|----------|
| EUB | 14 | 15 | No | No | No | Yes | No | No | Hoshino | Recoverd |
| KSB* | 51 | 19 | No | No | No | Yes | No | No | Hoshino | Recoverd |
| OHJ | 17 | 7 | No | No | No | No | No | No | Hoshino | Recoverd |
| JMH* | 13 | 18 | No | No | No | No | No | No | Hoshino | Recoverd |
| KKH | 12 | 18 | No | No | No | No | No | No | Hoshino | Recoverd |
| PMJ | 14 | 26 | No | No | No | No | No | No | Urabe | Recoverd |
| KDH† | 54 | 21 | No | No | No | No | No | No | Urabe | Recoverd |
| KHM* | 65 | 44 | No | No | No | No | No | No | Urabe | Recoverd |
| KJH† | 47 | 19 | No | No | No | Yes | No | No | Urabe | Recoverd |

*A case of booster

† A case of transfer. It was confirmed by PCR and virus culture

Table 6. 7 Reported Cases Who had Diagnosed Aseptic Meningitis with Clinical Definition after MMR Vaccination

| Name | Age (mon.) | Interval between Vaccination and Meningitis(days) | Convulsion | Patotid Swelling | Meningeal Irritation Sign | Fever | Rash | Neck Stiffness | Strain | Result |
|------|------------|---|------------|------------------|---------------------------|-------|------|----------------|---------|----------|
| SJH* | 24 | 3 | No | No | Yes | Yes | Yes | No | Hoshino | Recoverd |
| CKY | 74 | 15 | No | No | Yes | Yes | Yes | Yes | Hoshino | Recoverd |
| JMY† | 31 | 18 | No | No | Yes | Yes | No | No | Hoshino | Recoverd |
| JYE | 14 | 25 | No | No | Yes | Yes | Yes | No | Hoshino | Recoverd |
| JSB | 12 | 12 | No | No | Yes | Yes | Yes | No | Urabe | Recoverd |
| SJH | 16 | 27 | No | No | Yes | Yes | No | No | Urabe | Recoverd |
| KTJ | 59 | 23 | No | No | Yes | Yes | Yes | Yes | Urabe | Recoverd |

*A case of exclusion from analysis

† It was confirmed by PCR and virus culture.

1990 1994 1,874 ,
 1995 430 , 1996 254 , 1997 238 가 .
 1998 4,461 4 6 가
 가 1999 2,514 .

10/100,000 가
 6) . 1998 , 1999
 가 ,
 7 9) .

MMR
 1983 MMR
 1995 Hoshino Urabe AM-9
 Jeryl Lynn , Rubini , Lenniggrad-3
 . MMR

Urabe AM-9 MMR
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 3 MMR

가 가 . 1995
 Jeryl Lynn
 Rubini , 가
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Jeryl Lynn
 0.08/1,000,000, 0.26 0.06/1,000,000
 15, 16) . 1/1,000,000
 17) . Leningrad-3 1/1,000
 18) . Rubini

가
 . Urabe
 (SmithKlein Beecham) 1/62,000
 19) , (Pasteur-Meriéux Connaught)
 1/28,400 5, 20) .
 Urabe AM-9 1/18,686 1/933
 , Hoshono 1/1,883
 1, 21)

2, 3) . , , 가 4
 , 1995 가 4
 Urabe 1 Urabe 1
 3 Urabe
 1) . Brown 14)
 가 Urabe
 22) Urabe AM9

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 1993 MMR
 MMR 28
 Urabe , 1/2,600
 23 25) . Jeryl
 Lynn 가 15%
 Urabe
 Urabe Jeryl
 Lynn .

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가 가

2 Urabe Hoshino 가 strain
Rubini

, DTaP
5.4%, 14.7%

26)

($P > 0.05$).

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가 가

0.07%,

8/6,938 0.12%

7/6,938 0.1%

MMR

가

가

1/1,000

MMR

80%

가

mumps

Urabe

Hoshino

:

MMR

Jeryl Lynn

Rubini

가

가

Noke Anderson²⁷⁾

Urabe

Jeryl Lynn

risk-benefit ratio

:

가

Urabe

, 2, 4

PCR

가

가

28)

가

:

2

Urabe 3.9

가

%, Hoshino 4.6%, Rubini 0.3%

Jeryl

5

0.07%

Lynn

Rubini

Rubini

가

가

가

가

8

0.12%

1997

7

1

가 가

가

가

가

MMR

1998

MMR

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MMR

strain

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- MMR
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