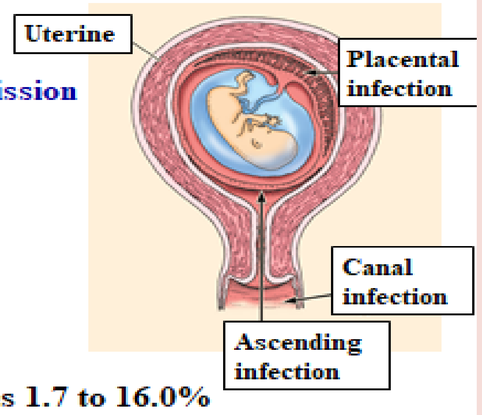
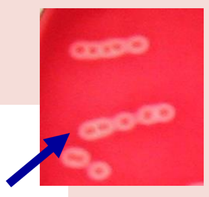
Introduction

- **Group B *streptococcus* (GBS, *Streptococcus agalactiae*) is a major cause of invasive infections among neonates and infants.**
- **GBS is a β-hemolytic gram-positive coccus.**
- **The prevalence rate of GBS in pregnant women was 8.7 to 21.7%.**



- ➢ Routes of mother-to-child transmission
  - ➢ Placental infection
  - ➢ Canal infection
  - ➢ Ascending infection
  - ➢ Breast infection
- ➢ GBS transmission rate to neonates 1.7 to 16.0%
- ➢ Neonatal and infant GBS invasive disease
  - ➢ Early onset GBS disease (0 to 6 days after birth)
  - ➢ Late onset GBS disease (7 to 89 days after birth)



- ➢ Early onset GBS disease (0 to 6 days after birth)
  - ➢ Incidence rate is 0.10 to 0.46 (1,000 livebirths)
  - ➢ Prevention methods for early onset GBS disease
    - ➢ CDC[1] (1996, 2002, 2010, USA)
    - ➢ The Japanese Association of Obstetrics and Gynecology [2] (2008, revised 2023 JAPAN)
    - ➢ Culture screening from the lower vagina and rectum
    - ➢ In all pregnant women at 35-37 weeks gestation
    - ➢ Intrapartum antibiotic prophylaxis at delivery (intravenous injection, ABPC) in indicated for women with positive GBS culture

Aim

This study aimed to clarify clinical features and incidence in infants with early-onset and late-onset GBS disease.

Method

- **The participants were children who developed early-onset GBS disease (EOD) or late-onset GBS disease (LOD) and their mothers from four institutes from 2017 to 2021.**
- **We divided the disease into early-onset type (0–6 days old) and late-onset type (7–89 days old) and calculated the incidence rate (number of inborn cases /number of births in hospital per 1,000 live births).**
- **This study was approved by the research ethics review board of the author institution (ID 11032).**

Results & Discussion

【Table 1】
- **The number of live births in the four hospitals was 15,894.**
- **There were 5 and 11 cases of EOD and LOD, respectively.**
- **The incidence rate was 0.13 (2/15,894 per 1,000 live births) for EOD.**
- **We have accumulated cases since 2007 and divided the study period into two parts:**
- **the period before (period I: 2007–2008) and after (period II: 2009–2021) issue of the guideline in Japan.**
- **EOD decreased significantly**
- **(period I: 0.42, 3/7,071 per 1,000 live births vs. period II: 0.06, 3/48,199 per 1,000 live births, *p*=0.031)**

【Table 2】
- **All five EOD cases were full-term, and two cases had risk factors (rupture of membranes and fever).**
- **GBS screening was performed in all five cases, four of which were negative.**
- **There were five LOD inborn cases, all maternal transfer cases. Of 11 LOD cases, 7 were preterm births.**

【Table 3】
- **The most common symptom was fever.**
- **Mother's mastitis symptoms were seen in 2 of the 11cases of LOD, and the route of transmission is unclear.**

【Discussion】
- **The reduction in incidence of EOD was considered effect of the Obstetrics and Gynecology Treatment Guidelines.**
- **The incidence of EOD would further decline with proper timing of GBS screening, sampling site, culture method, and appropriate antibacterial prophylaxis for pregnant GBS carriers.**
- **It is necessary to elucidate the factors that cause LOD and the route of infection.**

Table1 The onset situation

EOD/LOD	Hospital/Outside of the Hospital	2017-2021 n	2017-2021 Incidence	2007-2008(a) n	2007-2008(a) Incidence	2009-2021(b) n	2009-2021(b) Incidence	(a)vs(b) *p*-value
EOD	Hospital	2	0.13	3	0.42	3	0.06	*p* =0.031
	Hospital(maternal transfer)	0		0		0		
	Outside a hospital	3		3		9		
	Total	5		6		12		
LOD	Hospital	0	0	1	0.14	3	0.06	*p* =0.422
	Hospital(maternal transfer)	5		0		6		
	Outside a hospital	6		2		16		
	Total	11		3		25		
Number of live births			15,894		7,071		48,199	

Table2 Neonates's and their mother's demographic

Items			EOD (n=5)	LOD (n=11)
Gestational ages week	Premature birth		0	7
	Full term birth		5	4
Birth Weight	<2,500g		0	8
	≧2,500g		5	2
	Unknown		0	1
Apgar score (1minute)	< 7		2	3
	≧ 7		2	2
	Unknown		1	6
Delivery mode	Vaginal		3	4
	Cesarean section		2	7
Risk factor	Premature birth		0	7
	Rupture of membranes		2	5
	Fever		2	2
Screening	Examined		5	8
	Period	< 35wk	1	3
		35wk	2	1
		36wk	1	1
		Unknown	1	2
	Result	Positive	1	3
		Negative	4	4
Mother's mastitis symptoms			-	2
Brest milk's culture	Examined		-	6
	Result	Positive	-	1
		Negative	-	5

Table3

Items		EOD (n=5)	LOD (n=11)
Time at onset	48 hours old	3	-
	2 to less than 7 days old	2	-
	Days 7 to 28	-	3
	Days 29-56	-	7
	After 57 days of age	-	1
Incidence	Fever	2	11
	Respiratory Disturbances	2	3
	Not doing well	1	3
	Breast sucking ability decreased	0	1
	Abdomial bloationg	0	1
	Vomiting	0	0
	Mother's mastitis symptoms	0	2
Diagnosis	Septicemia	2	9
	Meningitis	3	2
Prognosis	Survived	5	10
	Neurological sequelae	0	1
	Death	0	0

Conclusion

- **The incidence of EOD decreased, but the incidence of LOD did not decrease.**
- **To further reduce GBS infections, countermeasures against false-negative GBS screening for EOD and investigation of the infection route for LOD are necessary.**

Grant & COI

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I have no COI with regard to our presentation.

References

1) CDC：MMWR，59(No.RR-10)，2010．
2) The Japanese Association of Obstetrics and Gynecology & Japan Gynecologist Journal Medical Association Edition: Obstetrics and Gynecology Treatment Guidelines: Kyorin, 302-4, 2023.
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