Regional Perinatal Medical Care Systems: Efforts of Kanagawa Prefecture, Japan

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Hiroshi ISHIKAWA*1

Introduction

Pregnancy and childbirth always carry potential risk. However, considering that approximately 1 million births take place in Japan annually, it is unrealistic to expect all deliveries to take place at healthcare facilities with high levels of maternal and neonatal medicine. Accordingly, it is recommended that expectant mothers with low-risk pregnancies are to receive follow-ups at primary healthcare facilities and be referred or transferred to secondary or tertiary healthcare facilities only when necessary.

Thus, regional perinatal medical systems, particularly emergency transportation systems for mothers and newborns, are indispensable systems for effectively utilizing currently available social resources. In recent years, however, several incidents concerning the transportation of mothers have occurred in succession, providing more opportunities for the mass media and general public to claim that perinatal emergency transportation systems are malfunctioning. Many factors have been pointed out as the cause behind the repeated incidents, such as increasing tendency of low-birth-weight infants and other high-risk pregnancies despite the overall birthrate decline and insufficient NICU equipment that cannot keep up with the rising number of high-risk births. Another fact is that an increasing number of primary and secondary healthcare institutions equipped to handle deliveries are being closed down one after another due to problems concerning gynecological examinations and other issues, and more and more patients are requesting to deliver at tertiary healthcare facilities.

Kanagawa Prefecture is no exception to these problems. Here I present an overview of the measures taken in Kanagawa Prefecture during Fiscal Year (FY) 2007 to reform the obstetrical emergency system in response to these issues.

History and Issues of Kanagawa Prefecture Perinatal Emergency System

Kanagawa Prefecture launched Neonatal Emergency Medical System in 1981 and then Maternal Emergency System in 1985. These two systems merged to form today's Kanagawa Prefecture Perinatal Emergency System. Under this system, when an obstetrical emergency occurs at a healthcare facility, the facility contacts the Base Hospital in charge of the area. There are eight perinatal medical centers for mothers and neonates designated as Base Hospitals in Kanagawa Prefecture, four of which are general centers and the other four are regional centers (**Fig. 1**). If the Base Hospital responsible for the region is able to accept

*1 Director, Department of Obstetrics and Gynecology, Kanagawa Children's Medical Center, Kanagawa, Japan (hishikawa@hcmc.jp).
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the patient, it requests the transfer of the patient; if not, the Base Hospital is responsible for searching the healthcare facility that can accept the patient among other seven Base Hospitals and Core/Collaborating Hospitals (24 in the Prefecture) (**Fig. 2**).

Efforts to Improve the System: Partial entrustment to Kanagawa Prefecture Emergency Medicine Central Information Center

However, as the perinatal healthcare environment declines, the burden on Base Hospitals of

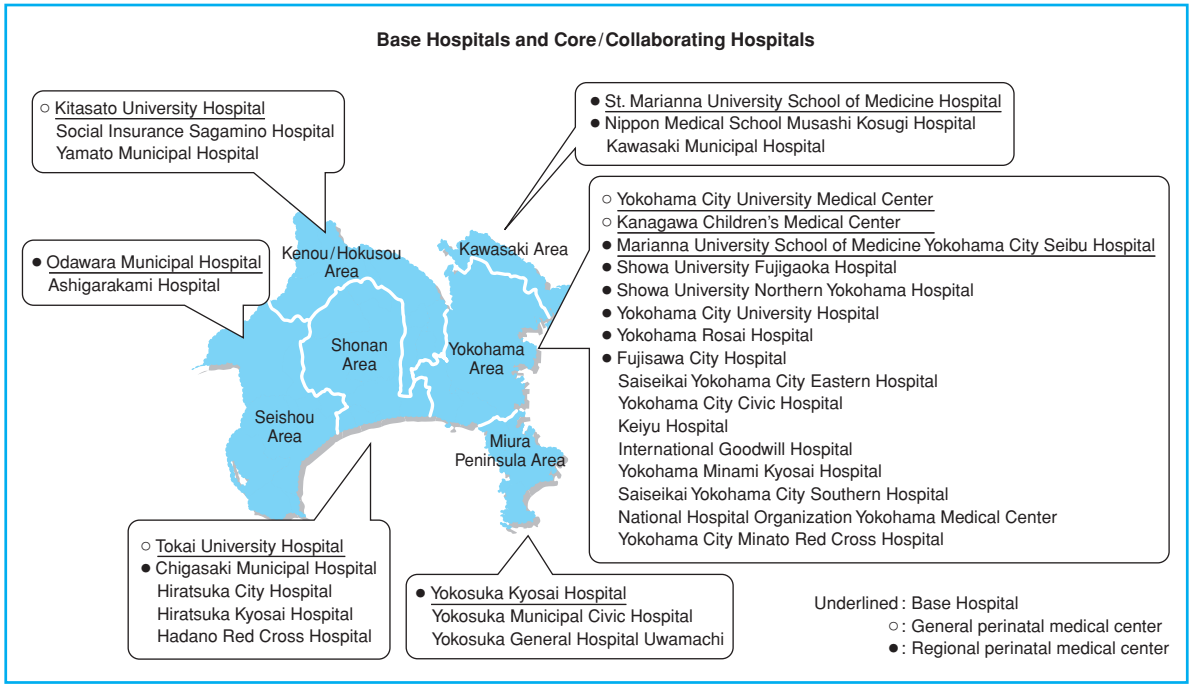

Fig. 1 Hospitals involved in the Kanagawa Prefecture Perinatal Emergency System

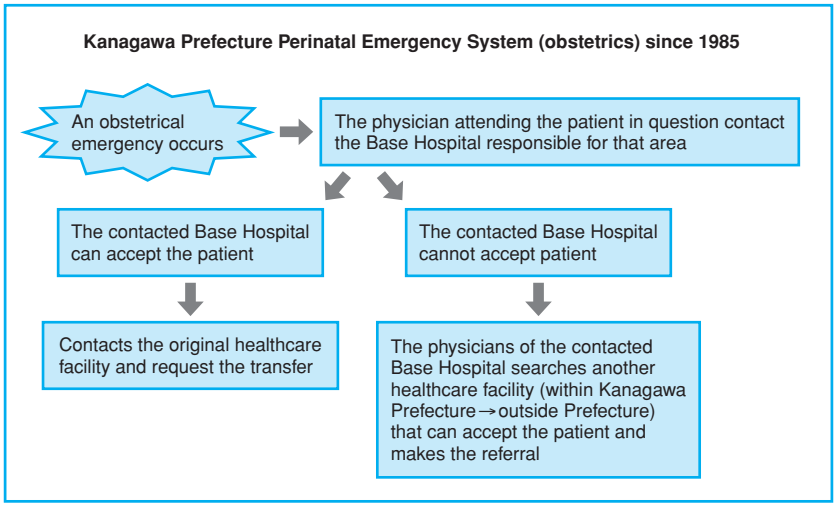

Fig. 2 Structure of Kanagawa Prefecture Perinatal Emergency System (obstetrics)

accepting and referring emergency perinatal cases has increased. Having forced to be on the phone extensively, it was beginning to interfere with the normal duties of the obstetricians/gynecologists (and physicians on duty at night times), and their signs of fatigue were apparent. To solve this problem, Dr. Tadaichi Yasoshima, President of Kanagawa Medical Association of Obstetrics and Gynecology, strongly requested the Head of Kanagawa Prefecture's Public Health and Welfare Department at Kanagawa Prefecture Perinatal Medicine Conference to assign permanent staff to specifically perform the telephone services of hospital searching that were carried out by Base Hospitals under the Perinatal Emergency System. As the result of discussions and negotiations, Kanagawa Prefecture proposed that those duties to be partially entrusted to the already existing Kanagawa Prefecture Emergency Medicine Central Information Center (hereafter Information Center). The trial operation began in April 2007, and official operations

Fig. 3 Kanagawa Prefecture Emergency Medicine Central Information Center

Receipt No.

Perinatal Emergency Admittance: Medical Facility Referral Survey Sheet (Obstetrics)

Emergency Medicine Central Information Center Fax: 045-XXX-XXXX (Tel: 045-XXX-XXXX)

Fax sent	/ / (yr/mo/day) time:		
Base hospital	Name	Attending physician in charge	Tel.
Requesting healthcare facility	Name	Attending physician in charge	Tel.

Diagnosis	(___ weeks ___ days pregnant)	Mother	Name Date of birth Age (Yrs) Parity

1 Number of fetus 1 / 2 / > 2 (Number)
→ Status of chorion/amnion (DD / MD / MM / Unknown)

2 Status of cervical opening Dilated ___ cm Effaced ___ % or ___ cm Cervical canal length ___ mm
Fetal membrane (Present / Absent) Other ( )

3 Amniorrhexis No / Yes
→ Date & time (/ / (yr/mo/day))
→ Amniotic fluid flow (Continuous / Minimal)
→ Amniotic fluid opacity (Clear / Opaque)
→ Intrauterine amniotic fluid level (AFI ___ cm or amniotic fluid pocket ___ cm / Unknown)

4 Estimated fetal weight (g) (g) (g)
Amniotic fluid pocket → (cm) → (cm) → (cm)

(Reproduced in English from the original.)

Fig. 4 Survey sheet for communication

began in November 2007 in accordance with the supplementary prefectural budget passed in September 2007.

Information Center is an organization managed and operated by Kanagawa Prefecture Medical Association since 1982 under the entrustment contract between Kanagawa Prefecture and the medical association. Its purpose is to provide necessary secondary and tertiary information for general emergency cases to healthcare facilities and emergency services (**Fig. 3**). The center staffs are prefectural or medical association employees (non-medical position). During the preparation period to be part of the prenatal emergency system, they handled various duties such as compilation of manuals, implementation of training and simulations related to perinatal emergency, and coordination between healthcare facilities.

Now, I need to emphasize the fact that not all the acceptance and referral duties were simply dumped on Information Center. Requests for transportation of emergency patients are received by Base Hospitals as before. When a Base Hospital cannot accept the patient, the hospital search/referral work is entrusted to Information Center only if the degree of emergency is relatively low (threatened premature labor, etc.). If the degree of emergency is high that advanced medical decisions must be made, then the hospital searching and referrals of the case are handled by the Base Hospital physicians as before. When no facility in Kanagawa Prefecture is able to accept the patient due to lack of vacancies or other reasons, searches of healthcare facilities outside of the Prefecture are conducted by Base Hospitals for the time being. To prevent miscommunication, notification from Base Hospitals to Information Center is carried out by both fax and phone (**Fig. 4**).

As shown here, smooth coordination between Base Hospitals and Information Center is achieved through appropriate division of duties and coordination between the two parties (**Fig. 5**).

Advantages and Disadvantages of Partial Entrustment of Duties to Kanagawa Prefecture Emergency Medicine Central Information Center

As a result of reforms mentioned above, the burden on the obstetricians and gynecologists at Base Hospitals has clearly been reduced. There had been concerns for possible mismanagement in the communication between Information Center staffs and medical facilities, but in fact here have been extremely few problems. Moreover, integrated management of all information concerning perinatal emergency needs in Kanagawa Prefecture by Information Center has provided the additional benefits, like enabling various statistical analyses to be performed swiftly and accurately and creating a shared awareness among the prefectural employees on the difficulty of the perinatal healthcare environment.

The unique characteristic of these reforms is the introduction of non-medical personnel to coordinate patient transportation. Yet, the system is operating smoothly due to the fact that Information Center already had the experience

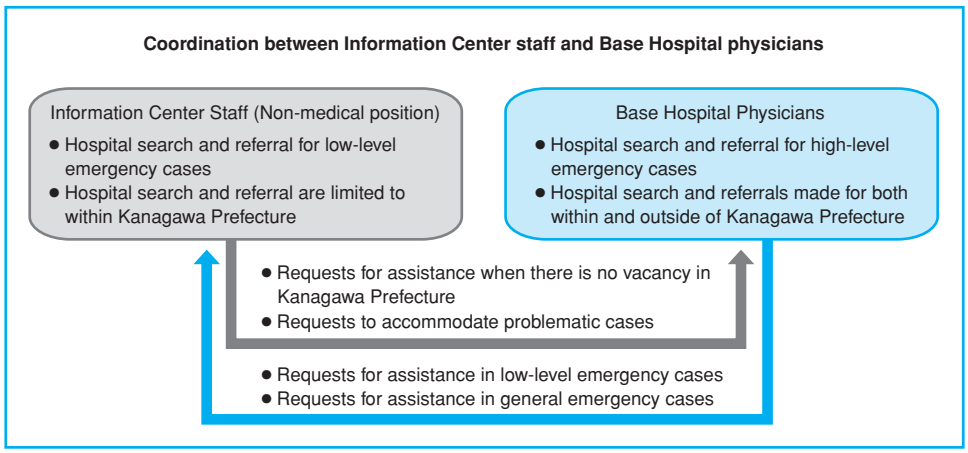

Fig. 5 Division of Duties and Collaboration between Information Center and Base Hospitals

of providing information regarding general emergencies and therefore was familiar with the handling of emergency medicine and knew the know-how. In fact, one could say that the devotion and effort of the Information Center staff are sustaining this system. Additionally, dividing the duties between Base hospitals and Information Center has prevented Information Center from being burdened by excessive work.

However, that in turn means that the effect of easing the burden on Base Hospitals is being limited. Additionally, the problem of the time it takes for hospital searching and patient referral has not been resolved. Furthermore, the cases that the referral are made to healthcare facilities outside of Kanagawa (mainly Tokyo) because no facilities in Kanagawa Prefecture are able to accept the patient has remained constant at around 8% to 9% over the past few years, which means that the improved system had little effect in that aspect. In other words, patients and primary healthcare facilities continue to have difficulty to experience the system's benefits.

There is also another issue that the system fails to contribute; the requests for transportation from emergency medical services that are dealing with pregnant women who have not had regular checkups during pregnancy. This problem has been a growing concern in recent years. Another issue is emergency cases that involve pregnant women with complications. Although such case has not occurred so far in Kanagawa Prefecture, we can expect Information Center to process such situations promptly since it originally handled general emergencies. Making procedure adjustments in the system is an issue for future consideration.

Conclusion

Partially entrusting the duties of patient acceptance and referral in perinatal emergencies to the non-medical coordinators at Information Center has helped to improve the efficiency of Kanagawa Prefecture's Perinatal Healthcare System. This improvement was made possible through the passion of Kanagawa Medical Association of Obstetrics and Gynecology, sincere response of the administration, and accumulated know-how in emergency services and efforts to improve perinatal emergency services of the non-medical staff at Information Center.

However, the fact remains that there are still issues to be addressed. The referral services should be expanded to cover more extensive area while speeding up the processing time at the same time. It is also recommended that the system would be equipped to handle the pregnant women who have not undergone regular checkups during pregnancy. Collaborating with general emergency services is advised, too. We intend to make further improvements through cooperation with the administration and other efforts.