# Ultrasonographic Examinations (After 59 Years )of Yusho Victims Who Are Left Behind

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## Introduction

Almost 49years has passed since the first report on a news-paper of rice oil toxication spread over western Japan.14627 people went to the health center near their residential area and complained of ingestion of toxic oil. Only 913(6%) people out of 14627 designated as Yusho(2nd July 1969[1]). The severe symptoms of mainly skin were necessary to be admitted as toxicosis “Yusho victims”. The Criteria Diagnosis, Yusho[2] had neglected other various symptoms to say nothing of the symptoms appeared after. In addition at that time there were people who were not given any information though they had eaten the toxic oil. Many people who had admitted later as certified Yusho had not noticed the fact that they had eaten toxic rice oil. The number of people who had taken toxic oil after July 1969 is not counted in the number 14627. The total number of claimed people has never been published afterwards[3].

Some people had lived in a geographic isolation for example in a remote island. In Nagasaki Prefecture Kyusyu,Japan Narucho in Naru Island, and Tamanouracho a small town in Fukue Island both belong to the Lower Goto Archipelago in Nagasaki. Fukue Island is rather large and consist of one city and 3 towns. In Naru-cho and Tamanoura-cho both residents were severely affected by the toxic oil.

If we compare the geographic conditions of these two town, we conclude Naru-cho is more isolated than Tamanoura-cho. It took one hour or more to go to the public institution in Fukue Island from Naru Island, and When the sea is rough , the traffic is suspended.

In 1965and1970 the number of the inhabitants in Naru-cho was 9163 (1965) and 6569 (1970) and Tamanoura-cho was 5629 (1965) and 4390 (1970).

At that time in Naru-cho many people had not been informed the toxic rice oil they had bought. The oil had been sold by a rice wholesale dealer of Nagasaki to each rice dealer in this island,and each store had sold rice oil at their shop or a store on wheels. The concerned oil was packed in a can that holds 18.039litters.

The amount of toxic oil sold in Naru-cho was officially 158 canned oil,whereas the amount in Tamanoura-cho in Fukue Island was 50 canned oil. In Naru Island it was possible another roots of distribution.

The number of certified Yusho in Naru-cho is now about 150 ,on the other hand, in Tamanoura-cho about 500.

If we reckon the number of certified Yusho of Naru-cho from the amount of consumed oil, the number of certified Yusho may be at least 1500.

The number of certified Yusho in Naru-cho was so small compared with Tamanoura-cho. T.Yorifuji[4] et al. reported the regional (Naru-cho and Tamanoura-cho) impact of the exposure to the PCB and PCDF mixture on stillbirth rate and sex ratio. Because both towns were known as areas affected seriously by the toxic oil. They found, in a decade and a half after the exposure, the increase of the spontaneous stillbirth rate coincide with a decrease in sex ratio.

Our motivation for this study is "There may be still so many uncertified Yusho victims in Naru-cho."

Turning now to the Criteria for certified Yusho. At first the criteria were mainly confined to dermal syndrome. The toxicity of Kanemi rice oil had proved to be PCB in 1968 and PCDFs in 1975(J.Nagayama, Y.Masuda[5]). PCDFs were detected in tissues of Yusho victims in1977. In 2004 new criteria (M.Furue,T.Uenotuti[6]) for admitted Yusho were adopted (blood level of PCDFs and dl-PCBs(dioxin like PCBs).The blood level was measured after 36years or more. These criteria have a serious defect. In Japan there were no blood conservation of those days ( gathered in1968). These criteria have been applied only blood levels of these days between 2004 and 2016 ( more than 36years after ).In 2012 new criteria[7] were decided :Those who have certified Yusho as a family member are approved as a Yusho, except those children born after 1969.

In 2012 those who had certified Yusho as a family member admitted as Yusho.

To have "objective data" to decide Yusho, Yusho Group adopt the blood level of PCDFs value to decide a certified Yusho. But recent blood level of PCDF may have changed from that of 49 years ago by the life-style (eating vesitables, fasting , perspiring ,some kind of medicine etc).

## Materials and Methods

In response to the request of Un-certified Yusho's Organization, medical practitioner's group were organized.The members of group consist of medical practitioners (internal medicinists,psychiatrist,gynecologist) ,dentists ,laboratory technicians who have technical skills for ultra sonography, nurses,and members of the secretariat. The purpose of this organization is to clarify the clinical Yusho with medical examinations.

This time we planned to examine the health status of inhabitants of Naru Island (remote island of Nagasaki, Kyusyu, Japan). As stated above, in this island many people have gone through life without the information of their Kanemi rice oil poisoning.

We had examined 40 people (from 51y.o to 88y.owho had eaten toxic oil. We had examined blood pressure, electrocardiogram, With use of ultrasound, (Toshiba Medicalsystem K.K,"Viamo" 7.5MHz,linear probe,and

Fujifilm Medical K.K, “sonosite mamnomax, 5~10MHz,linear probe.

We had measured the intima media thickness (IMT) of common carotid artery and properties of plaque in case of existence. Moreover we had examined their thyroid organ deliberately. Among 40 people,few people had a medical examination held by Yusho Study Group.

## Result and Discussions

Ultrasound studies of the thyroid revealed mass lesions 4 cases out of 40 (10%) examinee. These tumors indicate malignant but need more detailed examinations i.e. cyto-diagnosis. 7cases out of 40 (15% ) indicate benign mass lesions or cysts with strong echo (calcification ). These cases seem to be benign but necessary to be followed. Cysts without strong echo showed 14cases out of 40(35%).

Those cases that have no thyroid tumor revealed 37.5%(15 out of 40).

| lesion | malignancy susp | beneign susp ☆ | cysts(without calcification) | no lesion |
|---|---|---|---|---|
| total Number (40) | 4 | 7 | 14 | 15 |
| ♂ Number (22) | 1 | 1 | 10 | 10 |
| ♀ Number (18) | 3 | 6 | 4 | 5 |
| ☆including cysts with calcification | | | | |

Four out of 40 examinees had mass lesion suggest malignancy. And two of them had rather high blood concentration of PCDFs. Final diagnosis of these tumors should be decided by fine needle aspiration cytology of solid nodule.

Thyroid tumor was reported in relation to dioxin exposed people[7,8]. So the residents of Naru-Island,exposed to toxic oil may have some difficulties in thyroid organ.

Without abnormal thyroid function or swelling of thyroid, we do not notice the thyroid tumor. In this examination we had supposed any change of thyroid before the appearance of syndrome. Throid tumor even if cyto-diagnosis shows malignant, the progress is rather slow except for anaplastic carcinoma or poorly differentiated carcinoma, thyroid tumor may be a temporary standard of dioxin exposure of long time ago. This

is a hypothesis to be confirmed after examinations of more cases.

The total report of our examinations will soon published.

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## References

(1) Announcement of Ministry of Health and Welfare, Japan (1969)

(2) Katuki S.Fukuoka.(1969) Acta Med 60.403-7

(3) Mamoru Shimoda ,(2008) The International Symposium on East Asian Environmental Sociology:Problems, Movements and Policies Proceedings 166-176

(4) Yorifuji T[1] , Kashima S, Tokinobu A, Kato T, Tsuda T .( 2013) Environment International 59 12-15

(5) M.Furue,T.Uenotuti,(2005),Acta Med,96(5):124-134

(6) Announecement of Ministry of Health,Labor and Welfare,Japan (2013)

(7) LeKT,SawickiMP,WangMB,LeungAM,(2016)Endocrine Practice,22(6)699-702

(8) Yi SW,Hong JS,Ohrr H,Yi JJ(2014) Environmental Research 133,56-65