

- 2) **Thermotron RH-8**(Yamamoto Vynitor Co., Ltd., Japan)

The RF energy was transmitted from a generator through two coaxial cables to disc electrodes. For superficial or shallow-seated tumors, different sized electrodes were paired, with a small electrode at the tumor side. Frequency is 8 MHz.

- 3) **HMS-020**(Aloka Co., Ltd., Japan)

An indirect applicator has the advantage of being able to be used on uneven body surfaces. It was used for tumors with a thickness of 2–3cm. Frequency is 2450 MHz

- 4) **HTS-100**(Tokimec Co., Ltd., Japan)

Characteristics of this equipment has the lens applicator. This lens applicator has metallic plates inside it, which control the phase of the electromagnetic field in the aperture. The distribution of the transverse electric field radiated from applicator that the maximum heating depth generated by the lens applicator was over two times the depth that could be obtained by conventional waveguide type applicator.

- 5) **TAG MED 434**(TAG MED Co., Ltd., USA)

Hyperthermia system TAG MED 434, a hyperthermic machine using 434 MHz microwave has three different size indirect applicators and also provided interstitial and intracavitary applicators.

- 6) **Lund Buchler 4010**(Lund Science Co., Ltd., Sweden)

This system consists of a microwave generator, a microcomputer, six applicators, a water circulation system, a water bolus and a thermometry unit. Frequencies of either 434 MHz or 915 MHz can be chosen according to the tumor depth.

## 5. References

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## 4

### A Group Study of Several Kinds of Combined Chemotherapy for Advanced Head and Neck Cancer

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Chemotherapy for head and neck cancer has been common since Bleomycin became available. And nowadays we have several other kinds of chemotherapy agents such as Bleomycin, Peplomycin, Cisplatinum, Methotrexate and 5-FU. It is, however, an obvious fact that it is extremely difficult to treat head and neck cancer with only a single agent.

As a result, a group study of combined chemotherapy for advanced head and neck cancer was launched and has been going on since 1984. This group was organized by the 14 head and neck surgery departments of the cancer hospitals in Japan, and their number has recently increased to 15.

The first study was performed from 1984 to 1986 with two regimens for advanced head and neck cancer which are shown below :

- Regimen A : CDDP 80mg/m<sup>2</sup> i.v.(day 1)  
Peplomycin 15mg/body s.c. infusion  
or IVH(day 2–5)  
MTX 40mg/m<sup>2</sup> i.v.(day 2)

Regimen B : CDDP 80mg/body i.v.(day 4)  
Bleomycin 15mg/body i.v.(day 1, 5)  
MTX 20mg/body i.v.(day 1, 5)

The registration of regimen A and B was done using a randomized method. Regimen A was applied in 64 cases and Regimen B in 55 cases. As a total 136 cases were registered. The response rate of Regimen A was better than Regimen B.

In the second study, we compared the original A regimen with a new regimen B. Regimen B in study 2 was composed of only CDDP and Peplomycin, as our prior research revealed that MTX was not effective as a single agent for head and neck cancer.

Regimen A : CDDP 80mg/m<sup>2</sup> i.v.(day 1)  
Peplomycin 15mg/body s.c. or IVH  
(day 2-5)  
MTX 40mg/m<sup>2</sup> i.v.(day 2)  
Regimen B : CDDP 80mg/m<sup>2</sup> i.v.(day 1)  
Peplomycin 15mg/body s.c. or IVH  
(day 2-5)

117 cases of head and neck cancer were registered from 1986 to 1988 and 93 were evaluated. 46 cases were treated using Regimen A and the response rate was 60.9%. 52 cases were assigned to Regimen B for treatment and the response rate was 23.1%. These results indicate that MTX is useful for head and neck cancer in combined chemotherapy.

From these results we started a third study, which

continued from 1988 to 1990. In this period Regimen A was the same as in study 2 and Regimen B, MTX was replaced by 5-FU. Each regimen is shown as follows :

Regimen A : CDDP 80mg/m<sup>2</sup> i.v.(day 1)  
Peplomycin 100mg/m<sup>2</sup> s.c. or IVH  
(day 2-5)  
MTX 40mg/m<sup>2</sup> i.v.(day 2)  
Regimen B : CDDP 80mg/m<sup>2</sup> i.v.(day 1)  
Peplomycin 10mg/m<sup>2</sup> s.c. or IVH  
(day 2-5)  
5-FU 500mg/m<sup>2</sup> 24 hour i.v. or IVH  
(day 2-5)

111 cases were registered and 98 of them were evaluated. 44 cases were applied to Regimen A with a response rate of 47.7% and 54 cases were applied to Regimen B with a response rate of 50.0%. There was no significant difference in the two groups.

From these results, a fourth study was undertaken in 1991 and has continued to the present. In this study two regimens are compared, one is CDDP, MTX and Peplomycin and the other is CDDP, MTX and 5-FU. From the results midway in this program there are no significant differences in the two regimens.

The group study for advanced head and neck cancer reveal that combined chemotherapy with CDDP, MTX and Peplomycin is very useful and that the side effects are minimal.