PACEMAKER IMPLANTATION IN JAPAN — 1982

The Japanese Committee on Cardiac Pacing

[MASAYOSHI YOKOYAMA, M.D. AND KUNITAKE HASHIBA, M.D. (Chairman)]

The survey was carried out to examine the number of artificial cardiac pacemakers which were implanted in Japan from the 1st of January through the 31st of December, 1982, and was compared to the previous survey performed in 1981.

METHODS

Questionnaires were sent by means of reply postcards to 644 medical and surgical departments or divisions at university hospitals and general hospitals which were possibly performing pacemaker implantation.

Pacemaker implantation was classified as new implantation or replacement.

RESULTS

A) Replies and collection rate (Table I)

The questionnaires were sent to 644 medical and surgical departments or divisions in Japan, which were possibly performing pacemaker

implantation and 447 replies were obtained. The collection rate was 69.4%.

The whole nation was divided into the following 10 blocks. Names in the parentheses are those of the prefectures in each block.

- 1) Hokkaido
- 2) Tohoku (Aomori, Iwate, Akita, Yamagata, Miyagi, and Fukushima)
- 3) Kanto (Tokyo, Kanagawa, Chiba, Saitama, Ibaragi, Gunma, and Tochigi)
- 4) Tokai (Aichi, Shizuoka, Mie and Gifu)
- 5) Koshin-etsu (Yamanashi, Nagano, and Niigata)
- 6) Hokuriku (Toyama, Ishikawa, and Fukui)
- 7) Kinki (Osaka, Kyoto, Nara, Shiga, Wakayama and Hyogo)
- 8) Chugoku (Okayama, Hiroshima, Tottori, Shimane and Yamaguchi)
- 9) Shikoku (Kagawa, Ehime, Tokushima, and Kochi)
- 10) Kyushu (Fukuoka, Saga, Oita, Nagasaki, Kumamoto, Miyazaki, Kagoshima, and Okinawa)

TABLE I REPLIES AND COLLECTION RATE

	Questionnaire Number	Replies received	Collection rate
<i>Hokkaido</i>	41	28	68.3
<i>Tohoku</i>	92	52	56.5
<i>Kanto</i>	153	111	72.5
<i>Tokai</i>	78	53	67.9
<i>Koshin-etsu</i>	25	19	76.0
<i>Hokuriku</i>	20	14	70.0
<i>Kinki</i>	98	69	70.4
<i>Chugoku</i>	41	30	73.2
<i>Shikoku</i>	40	27	67.5
<i>Kyushu</i>	56	44	78.6
<i>Total</i>	644	447	69.4

TABLE II NUMBER OF PACEMAKER SERVICES

	1982	1981	Difference
<i>Hokkaido</i>	24	28	— 4
<i>Tohoku</i>	40	45	— 5
<i>Kanto</i>	98	107	— 9
<i>Tokai</i>	45	46	— 1
<i>Koshin-etsu</i>	19	18	+ 1
<i>Hokuriku</i>	10	14	— 4
<i>Kinki</i>	59	71	—12
<i>Chugoku</i>	25	29	— 4
<i>Shikoku</i>	23	25	— 2
<i>Kyushu</i>	41	43	— 2
<i>Total</i>	384	426	—42

B) Number of pacemaker services (Table II)

Four-hundred-fourty-seven medical and surgical department or divisions replied to the questionnaire. In 384 of them pacemaker implantation was performed in 1982. The number of pacemaker services which performed pacemaker implantation in 1982 showed a 9.9% decrease as compared to 426 in 1981.

C) Number of implantations (Table III)

The total number of pacemakers implanted in 1982 in Japan based on the questionnaires was 5,524, showing a 14.0% increase as compared to 4,848 in 1981.

TABLE III NUMBER OF IMPLANTATIONS DURING THE YEAR

	1982	1981	Difference
Hokkaido	398	351	+ 47
Tohoku	590	554	+ 36
Kanto	1,500	1,231	+ 269
Tokai	486	406	+ 80
Koshin-etsu	276	200	+ 76
Hokuriku	200	186	+ 14
Kinki	773	782	— 9
Chugoku	465	393	+ 72
Shikoku	227	180	+ 47
Kyushu	609	565	+ 44
Total	5,524	4,848	+ 676

TABLE IV NUMBER OF IMPLANTATIONS PER INDIVIDUAL PACEMAKER SERVICE

	1982	1981	Difference
Hokkaido	16.6	12.5	+ 4.1
Tohoku	14.8	12.3	+ 2.5
Kanto	15.3	11.5	+ 3.8
Tokai	10.8	8.8	+ 2.0
Koshin-etsu	14.5	11.1	+ 3.4
Hokuriku	20.0	13.3	+ 6.7
Kinki	13.1	11.0	+ 2.1
Chugoku	18.6	13.6	+ 5.0
Shikoku	9.7	7.2	+ 2.5
Kyushu	14.9	13.1	+ 1.8
Total	14.4	11.4	+ 3.0

D) Number of implantations per individual pacemaker service (Table IV)

The number of pacemaker implantations per individual service in 1982 increased to 14.4 from 11.4 in 1981. This is considered due to a decrease in the number of pacemaker services.

E) Ratio of new implantation (Table V)

Among 5,524 of pacemaker implantations in 1982, 4,188 were new implantations and 1,336 were replacements, 75.8% and 24.2% of the total implantations, respectively. There was a slight decrease of ratio of new implantations compared to the figure in 1981.

TABLE V RATIO OF NEW IMPLANTATIONS (%)

	1982	1981	Difference
Hokkaido	62.8	79.2	— 16.4
Tohoku	79.7	8.9	— 2.2
Kanto	76.0	76.5	— 0.5
Tokai	78.4	82.9	— 4.5
Koshin-etsu	75.4	82.0	— 6.6
Hokuriku	82.5	83.3	— 0.8
Kinki	77.2	81.7	— 4.5
Chugoku	78.3	76.7	+ 1.6
Shikoku	75.8	84.4	— 8.6
Kyushu	72.2	78.6	— 6.4
Total	75.8	80.7	— 4.9

TABLE VI NUMBER OF IMPLANTATIONS PER MILLION PERSONS

	1982	1981	Difference
Hokkaido	71	63	+ 8
Tohoku	61	58	+ 3
Kanto	43	37	+ 6
Tokai	36	31	+ 5
Koshin-etsu	51	37	+ 14
Hokuriku	67	62	+ 5
Kinki	40	41	— 1
Chugoku	61	52	+ 9
Shikoku	55	43	+ 12
Kyushu	44	40	+ 4
Total	48	42	+ 6

TABLE VII COMPARISON OF THE NUMBER OF IMPLANTATIONS PER MILLION PERSONS BETWEEN JAPAN AND WESTERN NATIONS INCLUDING THE U.S.A.

	<i>Total</i>	<i>New implants</i>	<i>Replacements</i>	<i>Number of all implants</i>
<i>Japan</i>	48	36	12	5,524
<i>United States</i>	621	518	103	141,100
<i>United Kingdom</i>	149	115	34	8,320
<i>Canada</i>	285	224	61	6,818
<i>West Germany</i>	695	519	176	42,300
<i>France</i>	458	346	112	24,500
<i>Italy</i>	250	167	83	14,202
<i>Spain</i>	117	95	22	4,375

F) Number of implantations per million persons (Table VI)

The average number of pacemaker implantations per million persons in Japan was 48, showing an increase of 6, compared to 42 in 1981. The population was based on the "Basic Population Register" provided by the Ministry of Health and Welfare of Japan on March 31, 1980.

G) Comparison of the number of implantations per million persons between Japan and Western Nations including the U.S.A. (Table VII)

These numbers except that of Japan are quoted from the results of the World Survey which was carried out from January through December 1981 and presented at the VIIth International Symposium on Cardiac Pacing held in Vienna in 1983.