Education and Propagation of Intravascular Surgery in Okinawa

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Summary

Okinawa is an island located on the southwest edge of the Japanese Islands in which about 1,300,000 people live, and is an area where self-conclusion type medical treatment is desired. In this area, intravascular surgery was only performed for several cases per year until 1998. From May 1999, intravascular surgery started being performed in earnest, and 140 or more cases of intravascular surgery per year were performed in 2002. In the meantime, various measures for the propagation and development of intravascular surgery that we undertook led to the increase in the number of cases. As a result, the choice of medical treatment has increased by propagating these medical treatments, and it seems that this has contributed to the welfare of the people of Okinawa.

Introduction

Okinawa Prefecture is an area with a subtropical oceanic climate located on the southwest edge of Japan and is between 28 degrees and 24 degrees north latitude. About 1,340,000 people live on the 48 islands of Okinawa. Four of the 48 islands occupy 83% of the gross area of Okinawa.

The main Okinawa island is the largest island, which occupies about 53% of the gross area, and has about 85% of the overall population. Okinawa Prefecture can be accessed in about two hours and 30 minutes by flying from

Tokyo, the capital in Japan. However, Okinawa is surrounded by sea, and self-conclusion type medical treatment is an area eagerly desired. Typical of Okinawa, the rate of longevity is high, and for this reason, it is an area that attracts the attention of those who live on the Japanese mainland. However, there has been a tendency for new medical treatment technology to be introduced late to the central area because of geographical problems. In recent years, intravascular surgery is progressing rapidly due to advances in equipment for medical treatment, and progress in diagnostic apparatus. Thereby, safer and more reliable curative effects are investigated. Despite this situation, in order to propagate intravascular surgery in Okinawa where intravascular surgery was not recognized, various positive measures were required. In Okinawa, only several cases of intravascular surgery were performed per year before 1998. As a result of positively tackling the propagation of medical treatment, 140 or more treatments per year were performed from 2002. The 18th Annual Meeting of the Japanese Society for Intravascular Neurosurgery was held in Okinawa in December 2002. It seems that intravascular surgery in Okinawa will develop further in the future. The current condition of intravascular surgery in Japan was investigated by this society. We describe the current condition and measures to propagate intravascular surgery in Okinawa, referring to these results.

Methods

To propagate intravascular surgery in Okinawa, from May 1999, we produced a case report for a medical association within the prefecture, and held periodical case discussion meetings with the doctors of related departments. Furthermore, in order to spread knowledge about intravascular surgery to the people

of Okinawa, treatment was publicized in newspapers and on television. Although the 18th Annual Meeting of the Japanese Society for Intravascular Neurosurgery was held in Okinawa in December 2002, in order to understand the current condition of intravascular surgery in Japan, a questionnaire was conducted before this society holding.

Table 1 Items of the questionnaire

Q1-1.	How many times have you performed intravascular surgery as an operator until now?
Q1-2.	How many times have you performed intravascular surgery as an operator, instructor, or an assistant until now?
Q2-1.	How many times have you performed cerebral aneurysm embolization as an operator until now?
Q2-2.	How many times have you performed cerebral aneurysm embolization as an operator, instructor, or an assistant until now?
Q3-1.	How many times have you performed AVM embolization as an operator until now?
Q3-2.	How many times have you performed AVM embolization as an operator, instructor, or an assistant until now?
Q4-1.	How many times have you performed dural AVF embolization as an operator until now?
Q4-2.	How many times have you performed dural AVF embolization as an operator, instructor, or an assistant until now?
Q5-1.	How many times have you performed PTA stenting of the extracranial artery as an operator until now?
Q5-2.	How many times have you performed PTA stenting of the extracranial artery as an operator, instructor, or an assistant until now?
Q6-1.	How many times have you performed PTA stenting of the intracranial artery as an operator until now?
Q6-2.	How many times have you performed PTA stenting of the intracranial artery as an operator, instructor, or an assistant until now?
Q7.	What complications have you experienced until now?
Q7-1.	How many patients died within one month of the operative procedure?
Q7-2.	How many patients are there who presented symptoms of more than minor stroke?
Q7-3.	How many patients are there who presented transient symptoms?
Q8.	How many cases and complications (presenting symptoms of more than a minor stroke) of intravascular surgery performed as an operator, instructor, or an assistant in the past three years have you experienced?
Q8-1.	a) How many operations did you perform in 1999? b) How many complications did you experience in 1999?
Q8-2.	a) How many operations did you perform in 2000? b) How many complications did you experience in 2000?
Q8-3.	a) How many operations did you perform in 2001? b) How many complications did you experience in 2001?

The questionnaire was mailed to all members of the Japanese Society for Intravascular Neurosurgery. The questionnaire investigated the total trials of intravascular surgery and the number of trials for every disease performed as an operator until now. Moreover, it investigated the total number of trials of intravascular surgery and the number of trials for every disease performed as an operator, an instructor, or as an assistant (table 1).

Results

From July 1999 to September 2002, the Okinawa Intravascular Surgery Conference was held once every two to three months. Neurosurgeons mainly participated in this conference. In the conference, we discussed cases of intravascular surgery experienced recently, and cases of difficult treatment. A total of 16 conferences were held from July 1999 to September 2002.

The number of participants was an average of 16.6 per conference. The numbers of cases discussed was 48 cases in 1999, 90 cases in 2000, and 127 cases in 2001. Until September 2002, the number of cases discussed was 110 cases, and was certainly increasing. Since intravascular surgery spread through primary care doctors, we positively undertook the case report with a society sponsored by a prefectural medical association. Moreover, using the advantage of Okinawa as a resort, the Ryukyu Seminar was sponsored in June every year, doctors actively performing intravascular surgery from all over Japan participated, and we conducted a discussion of cases. This meeting stimulated doctors interested in intravascular surgery in Okinawa as a result. A newspaper and television gave a lecture about intravascular surgery, which was useful in propagating of knowledge of treatment to patients.

The questionnaire of intravascular surgery was performed in the 18th Annual Meeting of the Japanese Society for Intravascular Neurosurgery. There were 163 replies. The distribution was replies 39 advising doctors (there were 48 advising doctors in November 2002), 41 specialists (there were 109 specialists except advising doctors in November 2002), and another 83 persons. The 163 replies are considered, and the total number of cases for every question is shown in table 2. A total of 5923 intravascular surgery trials were performed in 2001. That is,

Table 2 The total number of cases for every question

Q1-1.	31,874	Q5-2.	3,800
Q1-2.	43,130	Q6-1.	1,915
Q 2-1.	8,452	Q6-2.	1,958
Q 2-2.	11,384	Q7-1.	264
Q 3-1.	3,329	Q7-2.	965
Q 3-2.	5,057	Q7-3.	1418
Q 4-1.	3,978	Q8-1.	a) 4980 b) 205
Q 4-2.	5,074	Q8-2.	a) 5279 b) 214
Q5-1.	3,397	Q8-3.	a) 5923 b) 186

around 6000 trials were performed on about 127,000,000 persons who lived in Japan. Since this data was replies from the members of the Japanese Society for Intravascular Neurosurgery who have been positively performing intravascular surgery, it was considered to be very precise.

Discussion

Intravascular surgery can be safely performed now with progress in equipment and technology. Intravascular surgery is used for cases that are difficult to treat by conventional procedures. Furthermore, intravascular surgery is used instead of conventional treatment.

In the International Subarachnoid Aneurysm Trial (ISAT)¹ reported recently, the efficacy of intravascular surgery on ruptured cerebral aneurysm was reported, and further propagation of intravascular operations is expected. Even in Okinawa Prefecture, endovascular treatment is spreading gradually. According to Kimura², the annual incidence rates of first-ever stroke in Okinawa was 105 per population of 100,000. By type of stroke, it was reported that cerebral infarction affects 53 per population of 100,000, intracerebral haemorrhage affects 41, and subarachnoid haemorrhage affects ten. Although Okinawa Prefecture has a subtropical climate, it seems that there is need for intravascular surgery for cerebrovascular disease. In Okinawa, although conservative treatment or craniotomy was mainly performed for cerebrovascular disease before 1998, it started to be used as alternative for intravascular

surgery in 1999 and afterwards. Through this questionnaire, 6000 trials of intravascular surgery per year were performed to a Japanese population of about 127,000,000. According to this data, with a population of about 1,340,000 in Okinawa, about 63 trials will be performed. However, in practice, 140 or more trials were performed, and the total intravascular surgical operations all over Japan is expected to increase in the future. It seems that having fully spread the advantages and disadvantages of intravascular surgery to neurosurgeons treating many patients who need intravascular surgery has led to the increase in the number of cases in Okinawa.

Moreover, it is also considered that the increase in the number of cases is largely due to disclosure of information on treatment through mass communications spread to the patient. Through this questionnaire, it was revealed that 264 people died after the operation within one month. That is, there were 43130 intravascular surgical procedures, and the rate of complication was 0.61%. Moreover, the number of those presenting symptoms of more than minor stroke was 965, and the rate of complication was 2.24%. The number of those presenting transient symptoms was 1418, and the rate of complication was 3.29%. In order for intravascular surgery to spread further, it is important that these complications decrease even more.

Conclusions

Various measures for propagating the development of intravascular surgery in a particular area have led to an increase in cases. Although intravascular surgery, which is effective and has few complications, is certainly performed, treatment alternatives have increased by propagating information about these treatments, and this seems to have contributed to the welfare of the people of the Prefecture.

References

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