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CREATING AND USEFULNESS OF PERCUTANEOU SRADIOFREQUENCY ABLATION DATA BASE FOR HEPATOCELLULARCARCINOMA

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ABSTRACT

Background/Aims: Clinical engineers operate and manage the radiofrequency ablation (RFA) generator during RFA for hepatocellular carcinoma (HCC) in our hospital. Clinical engineers also carry out data management of patient information. Initially, patient information including the patient status, treatment site, and nodule diameter at the time of treatment has been recording in database by Microsoft Office Excel. However, increased RFA sessions including recurrent HCC patients have a risen complicated problem. Therefore, in order to improve the operability and data management, we have created a percutaneous radiofrequency ablation database using the Microsoft Office Access.

Materials and Methods:. FromJanuary2012, the RFA treatment information table by Microsoft Office Access inputs treatment day, the generator, the hand piece, drugs, the treatment site, nodule size, treatment-time information, and patient status at the time of treatment.

Results: In January 2012 to May 2014, to register 154 patients on the Access database, RFA was performed 481 sessions. Ninety-six patients (62.3%) of 154 patients were two or more times of RFA sessions were performed.

Ninety-five cases of 481 sessions (19.8%) were required during treatment complications risk management from prior information.

Conclusion: The relationship associates data stored divided in to a plurality of tables. In addition, screen configuration is the time of information and treatment the patient information to be able to see in one screen, and to be able to easily understand the information for each patient.

We report the usefulness of database management by Microsoft Office Access.

INTRODUCTION

Hepatocellular carcinoma (HCC) is the third leading cause of cancer-related deaths worldwide and primarily arises from cirrhosis (Parkin *et al*., 2005; Mair *et al*., 2012). Radiofrequency ablation (RFA) is used widely for the local treatment of hepatocellular carcinoma (HCC) (Rossi *et al*., 2011). From 2008, clinical engineers operate the generator with performing the management in percutaneous radiofrequency ablation for hepatocellular carcinoma (HCC) in our hospital. Clinical engineers also carried out management of patient information.

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Initially, database of create and treatment site and noduledíameter in Microsoft Office Excel (MicroSoft Co. Ltd., Japan), has been to record the patient status at the time of treatment. However, it was complicated to manage by the treatment procedures increases. Therefore, in order to improve the operability, it performs created information management database in Microsoft Office Access (MicroSoft Co. Ltd., Japan) from January 2012. We report the usefulness of database management by Microsoft Office Access.

Subjects and Methods

RFA data has been recorded from 2008 to December 2011 to create a database including treatment site and nodule size, the patient situation at the time of treatment by Microsoft Office Excel (Fig. 1).

Radiofrequency Ablation database

	Date	Name	ID	Disease	Generator	Handpiece
1	1/4/2012	Saisei tarou	1234567	Hepatocellular Carcinoma Cirrhosis(C)	RITA	90-9-5-15
2	1/6/2012	Saisei Jirou	2234567	Cholangiocellular Carcinoma	RTC	26-222 15cm-3cm CoAccess
3	1/6/2012	Saisei Hanako	3234567	Hepatocellular Carcinoma Cirrhosis(alc)	RITA	90-9-5-15
4	1/11/2012	Saisei Sakurako	4234567	Colorectal Cancer Metastatic Liver Cancer	RITA	90-9-5-15
5	1/11/2012	Niigata Tatou	5234567	Breast Cancer Metastatic Liver Cancer	Cool-Tip	ACT2030
6	1/14/2012	Niigata Jirou	6234567	Colorectal Cancer Metastatic Liver Cancer	RITA	90-9-5-15
7	1/18/2012	Niigata Hanako	7234567	Hepatocellular Carcinoma Cirrhosis(C)	Cool-Tip	ACT2030

Figure 1.The database with Microsoft Office Excel Patient information such as patient name, disease name, or treatment sites are revealed

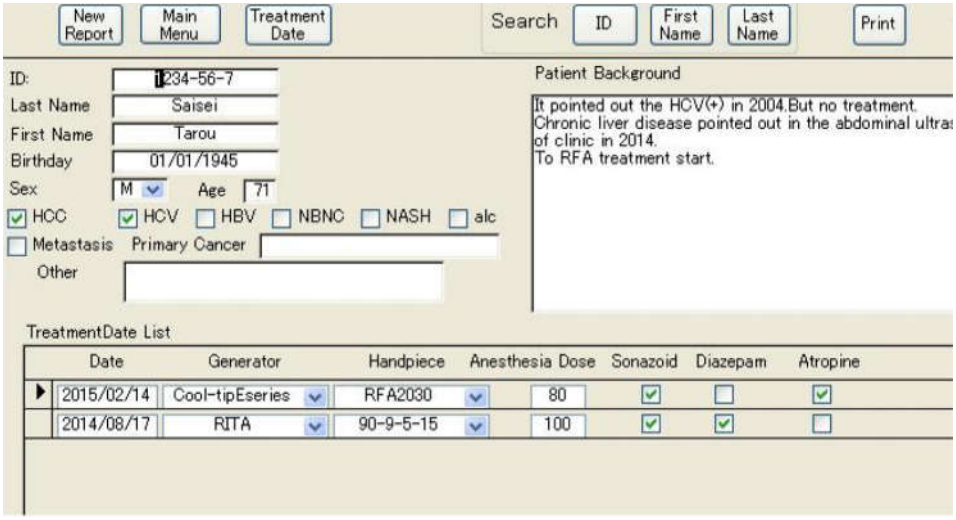

Figure 2. Patient master table with Microsoft Office AccessPatient ID, name, date of birth, gender, patient information, such as disease name are revealed

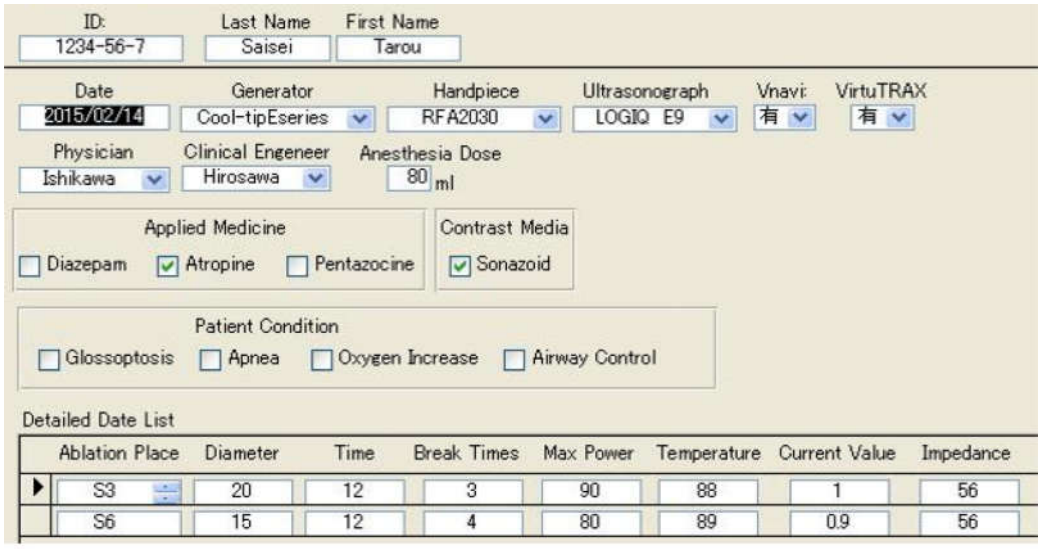

Figure 3. RFA treatment information table Microsoft Office AccessDate of treatment, use generators, use hand piece, use drugs, the treatment site, nodulesize, and type the treatment-time information such as a patient status at the time of treatment are revealed

From January 2012, we have created two of the patient master table and the RFA treatment information table in the database software by Microsoft Office Access. The patient master table (Fig. 2), the patient ID, entered the name, date of birth, gender, patient information, such as a disease name. The RFA treatment information Table (Fig. 3), treatment day, use the generator, use the handpiece, use drugs, the treatment site, nodule size, entered a treatment-time information such as a patient status at the time of treatment. Between each of the table was set relationships are linked with "patient ID". The relationship associates data stored divided into a plurality of tables to each other and a cooperative method for use. Also, to obtain a screen configuration that the treatment time information and patient information for easy grasp the information for each patient can be confirmed on one screen.

Ethics Statement

The study was approved by the Institutional Review Board of Saiseikai Niigata Daini Hospital and was conducted in accordance with the principles of the Declaration of Helsinki. All patients provided written informed consent.

RESULTS

In the Excel database, we had entered the treatment-time information and patient information for each treatment. However, the input item using the scroll function cannot display and view one screen. Hence, the patient information on the same screen for the Access database display the time of treatment information. In addition, the patient master table and RFA treatment information table are associated with the relationship in the Access database. It becomes possible to perform shortening to search for the patient ID. In January 2012 to May 2014, to register 154 patients on the Access database, RFA was performed 481 sessions. Ninety-six patients (62.3%) of 154 patients were two or more times of RFA sessions were performed. Ninety-five cases of 481 sessions (19.8%) were required during treatment complications risk management from prior information. By Access Data Base, we could manage predictable risk of RFA procedure.

DISCUSSION

Hepatocellular carcinoma (HCC) is associated with severe complications in patients with cirrhosis or chronichepatitis who have severe fibrosis. Although the treatment outcome of HCC recently has improved, intrahepatic recurrence occurs at a high rate of 10% to 25% annually despite radical treatment; and, in many patients, HCC recurrence leads to fatal consequences (Ikai *et al*., 2007). However, recurrence of HCC is frequent in the early post-treatment period even in patients who had undergone radical hepatectomy or radical local treatment including percutaneous treatment (Ishikawa *et al*., 2011). Therefore, some cases were performed repeated RFA. As RFA treatment procedures increases, complicated problems of data management have arisen. It is difficult to find and manage the necessary information for large amount of information. There is a risk that leads to the oversight of important points. However, it can reduce the risk of leading to a serious accident preventing oversight important points by only displaying necessary information to a screen configuration simple. In fact, Ninety-six patients (62.3%) of 154 patients were two or more times of RFA sessions were performed. Ninety-five cases of 481 sessions (19.8%) were required during treatment complications risk management from prior information. Access data base is different from the Excel database, it is possible to freely change the screen configuration and create own operation screen. Moreover, Access data base could automate certain operations and processing. Since it is possible to automate the data operations such patients find and report printing, the input and the search can be simplified. Management that is known in advance patient information is needed for manage risk. Furthermore, it is possible to carry out the risk management by treatment database. It is expected to lead to improvement in the safety of the RFA treatment. There are several limitations to the present study. The study was retrospective in nature and the patient population was heterogeneous with a small sample size. In conclusion, we create a percutaneous radiofrequency ablation database using Microsoft Office Access. Access database was effective to search easily prior information and increase the quality of the treatment on the basis of such information management.

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