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## Agenda

- 피인용도 (Times cited) 측정 방안
- “Cited by Synapse/CrossRef” via DOI
- KoreaMed와 Synapse에 적용되는 피인용 현황
- “Times Cited by” Search
- Recommendations

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MR imaging-histopathologic correlation of radiofrequency thermal ablation lesion in a rabbit liver model: Observation during acute and chronic stages

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Source: KOREAN JOURNAL OF RADIOLOGY, Vol 2 Issue 3 Pages: 151-158 Published: JUL-SEP 2001

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Abstract Objective: To determine the ability of MR imaging to detect the pathological changes occurring in radiofrequency (RF) thermal lesions and to assess its accuracy in revealing the extent of tissue necrosis. Materials and Methods: Using an RF electrode, thermal lesions were created in the livers of 10 rabbits. The procedure involved three phases. In the acute phase, six animals were killed the day after performing thermal ablation with RF energy, and two on day 3. In the subacute and chronic phases, eight rabbits underwent percutaneous hepatic RF ablation. After performing MR imaging, two animals were sacrificed at 1, 2, 4, and 7 weeks after the procedure, and MR-pathologic correlation was performed. Results: In the acute phase, the thermal ablation lesions appeared at gross examination as well-circumscribed, necrotic areas, representing early change in the coagulative necrosis seen at microscopic examination. They were hypointense on T2-weighted images, and hyperintense on T1-weighted images. Gadolinium-enhanced MR imaging showed that a thin hyperemic rim surrounded the central coagulative necrosis. In the subacute phase, ablated lesions also showed extensive coagulative necrosis and marked inflammation at microscopic examination. Beyond two weeks, the lesions showed gradual resorption of the necrotic area, with a peripheral fibrovascular rim. The size of lesions measured by MR imaging correlated well with the findings at gross pathologic examination. Conclusion: MR imaging effectively demonstrates the histopathologic tissue change occurring after thermal ablation, and accurately determines the extent of the target area.

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Korean Journal of Radiology

Volume 2, Issue 3, July 2001, Pages 151-158

MR Imaging-Histopathologic Correlation of Radiofrequency Thermal Ablation Lesion in a Rabbit Liver Model: Observation during Acute and Chronic Stages

Lee, J.D., Lee, J.M., Kim, S.W., Kim, C.S., Mun, W.S.

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Department of Diagnostic Radiology, Kwangju Wonkwang Hospital, South Korea

Department of Diagnostic Radiology, Chonbuk National University Hospital, 634-18 Kumamdong, Chongju-shi, Chonbuk-shi, 712-712 South Korea

Abstract

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Author keywords

Experimental; Interventional procedure; Interventional procedures; Liver; MR Liver

ISSN: 1229-6929 Source Type: Journal Original language: English Document Type: Article

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**MR Imaging-Histopathologic Correlation of Radiofrequency Thermal Ablation Lesion in a Rabbit Liver Model: Observation during Acute and Chronic Stages**  
Lee JD, Lee JM, Kim SW, Kim CS, Mun WS.

Department of Diagnostic Radiology, Chonbuk National University Medical School, Chonbuk, Korea  
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**Abstract**  
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**MR Imaging-Histopathologic Correlation of Radiofrequency Thermal Ablation Lesion in a Rabbit Liver Model: Observation during Acute and Chronic Stages**  
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**Abstract**

**Objective**  
To determine the ability of MR imaging to detect the pathological changes occurring in radiofrequency (RF) thermal lesions and to assess its accuracy in revealing the extent of tissue necrosis.

**Materials and Methods**  
Using an RF electrode, thermal lesions were created in the livers of 18 rabbits. The procedure involved three phases, in the acute phase, six animals were killed the day after performing thermal ablation with RF energy, and two on day 3. In the subacute and chronic phases, eight rabbits underwent percutaneous hepatic RF ablation. After performing MR imaging, two animals were sacrificed at 1, 2, 4, and 7 weeks after the procedure, and MR-pathologic correlation was performed.

**Results**  
In the acute phase, the thermal ablation lesions appeared at gross examination as well-circumscribed, necrotic areas, representing early change in the coagulative necrosis seen at microscopic examination. They were hypointense on T2-weighted images, and hyperintense on T1-weighted images. Gadolinium-enhanced MR imaging showed that a thin hyperemic rim surrounded the central coagulative necrosis. In the subacute phase, ablated lesions also showed extensive coagulative necrosis and marked inflammation at microscopic examination. Beyond two weeks, the lesions showed gradual resorption of the necrotic area, with a peripheral fibrovascular rim. The size of lesions measured by MR imaging correlated well with the findings at gross pathologic examination.

**Conclusion**  
MR imaging effectively demonstrates the histopathological tissue change occurring after thermal ablation, and accurately determines the extent of the target area.

**Keywords** Liver, MR, Liver, Interventional procedure, Interventional procedures, experimental.

Image-guided, percutaneous ablative therapies using thermal energy sources such as radiofrequency (RF) (1-3) microwave (4) and laser (5) are rapidly evolving as minimally invasive techniques for the treatment of primary and metastatic hepatic tumors. The potential benefits of these techniques over conventional surgical options include tumor ablation in neoplastic candidates, reduced morbidity compared with surgery, and use of the procedure on an outpatient basis (6). Preliminary clinical reports have demonstrated that hepatic RF ablation produces effective local disease control in a significant proportion of patients with resectable liver tumors (7-9). However, according to even the most optimistic long-term report of percutaneous RF thermal therapy is colorectal metastases, local tumors recurred in 35% of cases (10). In addition, recent studies have shown that a significant proportion of patients with hepatocellular carcinomas greater than 3-5 cm in diameter experienced local recurrence after the use of current thermal ablation strategies (11,12).

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**European Journal of Radiology**  
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**Multipolar radiofrequency ablation using 4–6 applicators simultaneously: A study in the ex vivo bovine liver**

Rudolf Stoffner<sup>1</sup>, Christian Kremser<sup>2</sup>, Peter Schullian<sup>3</sup>, Marion Haidu<sup>4</sup>, Gerlig Widmann<sup>5</sup>, Reto J. Bale

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**Abstract**

In this study the volume and shape of coagulation zones after multipolar radiofrequency ablation (RFA) with simultaneous use of 4–6 applicators in the ex vivo bovine liver were investigated. The RF-applicators were positioned in 13 different configurations to simulate ablation of large solitary tumors and simultaneous ablation of multiple lesions with 120 kJ of applied energy/session. In total, 110 coagulation zones were induced. Standardized measurements of the volume and shape of the coagulation zones were carried out on magnetic resonance images and statistically analyzed.

The coagulation zones induced with solitary applicators and with 2 applicators were imperceptibly small and incomplete, respectively. At 20 mm applicator distance, the total ablated volume was significantly larger if all applicators were arranged in a single group compared to placement in 2 distant applicator groups, each consisting of 3 applicators ( $p = .001$ ). The mean total coagulated volume ranged from immeasurably small (if 6 solitary applicators were applied simultaneously) to 74.7 cc (if 6 applicators at 30 mm distance between neighboring applicators were combined to a single group). Applicator distance, number and positioning array impacted time and shape. The coagulation zones surrounding groups with 4–6 applicators were regularly shaped, homogeneous and completely fused, and the axial diameters were almost constant.

In conclusion, multipolar RFA with 4–6 applicators is feasible. The multipolar simultaneous mode should be applied for large and solitary lesions only, small and multiple tumors should be ablated consecutively in standard multipolar mode with up to 3 applicators.

**Keywords**

Multipolar radiofrequency ablation; Ex vivo bovine liver; Experimental study; Coagulation zone measurement

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### MR Imaging-Histopathologic Correlation of Radiofrequency Thermal Ablation Lesion in a Rabbit Liver Model: Observation during Acute and Chronic Stages

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### Abstract

#### Objective

To determine the ability of MR imaging to detect the pathological changes occurring in radiofrequency (RF) thermal lesions and to assess its accuracy in revealing the extent of tissue necrosis.

#### Materials and Methods

Using an RF electrode, thermal lesions were created in the livers of 18 rabbits. The procedure involved three phases. In the acute phase, six animals were killed the day after performing thermal ablation with RF energy, and two on day 3. In the subacute and chronic phases, eight rabbits underwent percutaneous hepatic RF ablation. After performing MR imaging, two animals were sacrificed at 1, 2, 4, and 7 weeks after the procedure, and MR-pathologic correlation was performed.

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**False Positive and False Negative FDG-PET Scans in Various Thoracic Diseases.**  
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**Abstract**  
Fluorodeoxyglucose (FDG)-positron emission tomography (PET) is being used more and more to differentiate malignant focal lesions and it has been shown to be more efficacious than conventional chest computed tomography. However, FDG is not a cancer-specific agent, and false positive findings in benign diseases have been reported. (mycobacterial, fungal, bacterial infection), sarcoidosis, radiation pneumonitis and post-operative surgical condition intense uptake on PET scan. On the other hand, tumors with low glycolytic activity such as adenomas, bronchogenic carcinomas, carcinoid tumors, low grade lymphomas and small sized tumors have revealed false negative finding. Furthermore, in diseases located near the physiologic uptake sites (heart, bladder, kidneys, and liver), FDG-PET complemented with other imaging modalities to confirm results and to minimize false negative findings. Familiarity positive and negative findings will help radiologists interpret PET scans more accurately and also will help to determine the significance of the findings. In this review, we illustrate false positive and negative findings of PET scan in a variety of diseases.

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**High Prevalence of Ceftazidime-Resistant *Klebsiella pneumoniae* and Increase of Imipenem-Resistant *Pseudomonas aeruginosa* and *Acinetobacter* spp. in Korea: a KONSAR Program in 2004**  
Kyungwon Lee,<sup>1</sup> Chang Hyun Lim,<sup>2</sup> Ji Hyun Cho,<sup>3</sup> Wee Gyo Lee,<sup>4</sup> Young Uh,<sup>5</sup> Hwi Jun Kim,<sup>6</sup> Dongeun Yong,<sup>1</sup> Yunsop Chong,<sup>1</sup> and the KONSAR group

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**Abstract**

A nationwide antimicrobial resistance surveillance has been conducted since 1997 in Korea. In this study, susceptibility test data generated in 2004 by KONSAR group hospitals were analyzed and compared to those at a commercial laboratory. In hospitals, the rank orders of organisms in 2004 were identical to those in 2003. The most prevalent species was *Staphylococcus aureus* (20.2%) in hospitals, but *Escherichia coli* (29.7%) in the commercial laboratory. The proportions of *Enterococcus faecium* to all isolates of *Enterococcus faecalis* plus

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**MR Imaging-Histopathologic Correlation of Radiofrequency Thermal Ablation Lesion in a Rabbit Liver Model: Observation during Acute and Chronic Stages**

Jung Deul Lee, MD,<sup>1,2</sup> Jeong Min Lee, MD,<sup>2,3</sup> Sang Won Kim, MD,<sup>1</sup> Chung Soo Kim, MD,<sup>1</sup> and Wae Sung Mun, MD<sup>1</sup>

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2.1. RF system

2.2. Applicator configuration and ablation protocol

2.3. MR imaging and macroscopical evaluation

2.4. Measuring methods

2.5. Methodical failure

2.6. Methodically feasible but unsuccessful attempts

2.7. Axial plane

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3.1. Experimental series

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3.5. Influence of applicator distance on diameters and radii

4. Discussion

5. Limitations of the study

6. Conclusion

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**Multipolar radiofrequency ablation with simultaneous MR imaging**

Rudolf Stoffner, Reto J. Balek, Innsbruck Medical University

<http://dx.doi.org/10.1016/j.ejrad.2011.10.031>

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Abstract

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**MR Imaging-Histopathologic Correlation of Radiofrequency Thermal Ablation Lesion in a Rabbit Liver Model: Observation during Acute and Chronic Stages**

Jong Deok Lee, MD,<sup>1,2</sup> Jeong Min Lee, MD,<sup>1,2</sup> Sang Won Kim, MD,<sup>1</sup> Chong Soo Kim, MD,<sup>1</sup> and Woo Sung Mun, MD<sup>3</sup>

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**Abstract**

**Objective**

To determine the ability of MR imaging to detect the pathological changes occurring in radiofrequency (RF) thermal lesions and to assess its accuracy in revealing the extent of tissue necrosis.

**Materials and Methods**

Using an RF electrode, thermal lesions were created in the livers of 18 rabbits. The procedure involved three phases. In the acute phase, six animals were killed the day after performing thermal ablation with RF energy, and two on day 3. In the subacute and chronic phases, eight rabbits underwent percutaneous hepatic RF ablation. After performing MR imaging, two animals were sacrificed at 1, 2, 4, and 7 weeks after the procedure, and MR-pathologic correlation was performed.

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**MIR Imaging-Histopathologic Correlation of Radiofrequency Thermal Ablation Lesion in a Rabbit Liver Model: Observation during Acute and Chronic Stages**

Jong Deok Lee, MD,<sup>1,2</sup> Jeong Min Lee, MD,<sup>2,3</sup> Sang Won Kim, MD,<sup>1</sup> Chong Soo Kim, MD,<sup>1</sup> and Yoo Sung Mun, MD<sup>1</sup>

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**Abstract**

**Objective**  
To determine the ability of MR imaging to detect the pathological changes occurring in radiofrequency (RF) thermal lesions and to assess its accuracy in revealing the extent of tissue necrosis.

**Materials and Methods**  
Using an RF electrode, thermal lesions were created in the livers of 18 rabbits. The procedure involved three phases. In the acute phase, six animals were killed the day after performing thermal ablation with RF energy, and two on day 3. In the subacute and chronic phases, eight rabbits underwent percutaneous hepatic RF ablation. After performing MR imaging, two animals were sacrificed at 1, 2, 4, and 7 weeks after the procedure, and MR-pathologic correlation was performed.

**Results**  
In the acute phase, the thermal ablation lesions appeared at gross examination as well-circumscribed, necrotic areas, representing early change in the coagulative necrosis seen at microscopic examination. They were hypointense on T2-weighted images, and hyperintense on T1-weighted images. Gadolinium-enhanced MR imaging showed that a thin hyperemic rim surrounded the central coagulative necrosis. In the subacute phase, ablated lesions also showed extensive coagulative necrosis and marked enhancement at microscopic examination. Beyond two weeks, the lesions showed gradual resorption of the necrotic area, with a peripheral fibrovascular rim. The size of lesions measured by MR imaging correlated well with the findings at gross pathologic examination.

**Conclusion**  
MR imaging effectively demonstrates the histopathological tissue change occurring after thermal ablation, and accurately determines the extent of the target area.

**Keywords:** Liver, MR, Liver, Interventional procedure, Interventional procedures, experimental.

Image-guided, percutaneous ablative therapies using thermal energy sources such as radiofrequency (RF) (1-3), microwave (4) and laser (5) are rapidly evolving as minimally invasive techniques for the treatment of primary and metastatic hepatic tumors. The potential benefits of these techniques over conventional surgical options include tumor ablation in nonsurgical candidates, reduced morbidity compared with surgery, and use of the procedure on an outpatient basis (6). Preliminary clinical reports have demonstrated that hepatic RF ablation produces effective local disease control in a significant proportion of patients with nonresectable liver tumors (7-9). However, according to even the most optimistic long-term report of percutaneous RF thermal therapy in colorectal metastases, local tumors recurred in 35% of cases (10). In addition, recent studies have shown that a significant proportion of patients with hepatocellular carcinomas greater than 3.5 cm in diameter experienced local recurrence after the use of current thermal ablation strategies (11-12).

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Intraocular Pressure Elevation after Intravitreal Triamcinolone Acetonide Injection

Hye Young Paik, MD, Kyoung Yi, MD and Ha Kyoung Kim, MD

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**Seroepidemiology of Hepatitis A in Korea: Changes over the Past 30 Years.**

Lee H, Cho HK, Kim JH, Kim KH.

Department of Pediatrics, Ewha Womans University School of Medicine, Seoul, Korea. kaykim@ewha.ac.kr  
Department of Pediatrics, College of Medicine, The Catholic University of Korea, Seoul, Korea.

**Abstract**

This study aimed to assess the immune status of the Korean population against hepatitis A virus (HAV). Residual serum samples from 2008 to 2010 were collected from diagnostic laboratories and a total of 1,872 samples were analyzed. Anti-HAV seroprevalence was 57.3% in subjects aged 1-4 yr, 69.8% at 5-9 yr and decreased to 38.8% at 10-14 yr, 13.0% at 15-19 yr, and 11.7% at 20-29 yr. Seroprevalence increased with increasing age: 52.2% at 30-39 yr, 83.2% at 40-49 yr, 81.4% at 50-59 yr, 93.2% at 60-69 yr, and 95.1% at 70-79 yr. The most susceptible age group consisted of subjects aged 10-29 yr, especially those aged 20-29 yr. This pattern is markedly different from that in the past 3 decades, where the most susceptible group had consisted of children aged less than 10 yr and almost all subjects aged more than 20 yr had developed anti-HAV antibodies. Because of improvements in hygiene and introduction of hepatitis A vaccine, the age demographic of the susceptible population has shifted. These data are important for creating new prevention measures, including vaccination policies, to prevent and control outbreaks of hepatitis A in Korea.

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**Seroepidemiology of Hepatitis A in Korea: Changes over the Past 30 Years.**

Lee H, Cho HK, Kim JH, Kim KH.

Department of Pediatrics, Ewha Womans University School of Medicine, Seoul, Korea. kaykim@ewha.ac.kr  
Department of Pediatrics, College of Medicine, The Catholic University of Korea, Seoul, Korea.

**Abstract**

This study aimed to assess the immune status of the Korean population against hepatitis A virus (HAV). Residual serum samples from 2008 to 2010 were collected from diagnostic laboratories and a total of 1,872 samples were analyzed. Anti-HAV seroprevalence was 57.3% in subjects aged 1-4 yr, 69.8% at 5-9 yr and decreased to 38.8% at 10-14 yr, 13.0% at 15-19 yr, and 11.7% at 20-29 yr. Seroprevalence increased with increasing age: 52.2% at 30-39 yr, 83.2% at 40-49 yr, 81.4% at 50-59 yr, 93.2% at 60-69 yr, and 95.1% at 70-79 yr. The most susceptible age group consisted of subjects aged 10-29 yr, especially those aged 20-29 yr. This pattern is markedly different from that in the past 3 decades, where the most susceptible group had consisted of children aged less than 10 yr and almost all subjects aged more than 20 yr had developed anti-HAV antibodies. Because of improvements in hygiene and introduction of hepatitis A vaccine, the age demographic of the susceptible population has shifted. These data are important for creating new prevention measures, including vaccination policies, to prevent and control outbreaks of hepatitis A in Korea.

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Yonsei Med J. 1999 Aug;40(4):301-306.  
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### Relationship of CagA to serum gastrin concentrations and antral G, D cell densities in *Helicobacter pylori* infection

Jung Hwan Kim, Hyo Jin Park, Jun Sik Cho, Kwi Soon Lee, Sang In Lee, In Suh Park and Chang Keun Kim  
Department of Internal Medicine, Yonsei University College of Medicine, Seoul, Korea.  
Korean National University of Physical Education, Seoul, Korea.

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**Abstract**

The purpose of this study was to investigate whether the densities of antral gastrin and somatostatin-immunoreactive cells in *Helicobacter pylori* (*H. pylori*) infection were related to the bacterial expression of cytotoxin-associated gene A (CagA). 32 patients who had underwent diagnostic esophagogastroduodenoscopy were studied. On the histologic examination all patients had antral gastritis. We divided the subjects into three groups. Group I consisted of 6 patients who had chronic superficial gastritis, group II, 9 patients who had *H. pylori*-associated gastritis but with no expression of CagA, and group III, 17 patients who had *H. pylori*-associated gastritis with the expression of CagA. In group I and II, serum gastrin levels, and antral G cell and D-cell were measured. In group III, serum gastrin levels, and antral G cell and D-cell were measured, before and after the eradication of *H. pylori*. The results were as follows. Firstly, serum gastrin concentrations were significantly higher in the patients with *H. pylori* infection than in the negative controls. Next, there was no correlation between the changes in antral G or D-cell density and *H. pylori* infection. Thirdly, group III had a significant increase in serum gastrin concentrations and a significant decrease in antral D-cell density than group I. Fourthly, eradication of *H. pylori* in group III showed a significantly increased antral D-cell density. Our results suggest that hypergastrinemia in *H. pylori*-associated gastritis is relevant to the presence of CagA, and the possible mechanism of hypergastrinemia may be related to antral D-cell deficiency, which is caused by *H. pylori* infection with the expression of CagA.

**Keywords:** *Helicobacter pylori*, CagA, G cell, D cell, gastrin.

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| 11                                      | 7    | 2010 | 10.4070/kcj.2010.40.7.299  | Kim N.-H., Kang P.M.                                       | nical   | R     | Review  | 4        | 1 | 4           | 3  |      |  |         |  |          |  |             |  |                  |  |
| 12                                      | 8    | 2010 | 10.4070/kcj.2010.40.2.62   | Park H.-W., Kwon T.G., Kim K.-Y.,                          | s in patients   | OA    | Article | 3        | 3 | 5           | 6  |      |  |         |  |          |  |             |  |                  |  |
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| 38                                      | 34   | 2010 | 10.4070/kcj.2010.40.3.143  | Lee Y.S., Baek J.S., Kim S.Y., Seo S.W., Kwon B.S., Kim    | Childhood Brugada syndrome in two Korean families                       | C     | Article | 2        | 1 | 2           |    |      |  |         |  |          |  |             |  |                  |  |
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**Thank you!**