

# Yesterdays, Today's, and Tomorrow's—Korean Society for Pediatric Neuro-Oncology\*

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\*Mainly based on the retrospect of Dr. Thad Ghim, who is the 1st President of Korean Society for Pediatric Neuro-Oncology.

In 2022, in celebration of the 20th anniversary of the Korean Society for Pediatric Neuro-Oncology (KSPNO), a commemorative meeting was held with former and current members. At the meeting, there was a special lecture for the retrospect of the Emeritus Professor Thad Ghim, one of the founders and the 1st president (2002–2003) of KSPNO. He celebrated the history and development of the KSPNO, along with the vision of our society. Especially he appreciated the efforts and endeavors of our senior members. In 2001, we started as “Korean Pediatric Neuro-Oncological Study Group.” The next year, we changed our name to “Korean Society for Pediatric Neuro-Oncology (KSPNO).” KSPNO emphasized the multidisciplinary approach to patient care. These efforts were strengthened by “The National Cancer Moonshot Initiative” since 2005. Now our society goes forward together with “National Cancer Treatment Guideline Project and Childhood Cancer and Rare Disease Control Group Project.” After all, we do not exist for ourselves, but for our sick children.

## Keywords

Pediatric neuro-oncology; History; Korean Society for Pediatric Neuro-Oncology.

## INTRODUCTION

Today, Korea is suffering from a shortage of pediatricians due to the demographic crisis. In addition, as the centralization to the large cities continues, the scarcity of pediatric neuro-oncologists is deepening.

In 2022, in celebration of the 20th anniversary of the Korean Society for Pediatric Neuro-Oncology (KSPNO), a commemorative meeting was held with former and current members. At the meeting, there was a special lecture from Emeritus Professor Thad Ghim, one of the founders and the 1st president (2002–2003) of KSPNO. He celebrated the history and development of the KSPNO, along with the vision of our society. Dedicated to the efforts and endeavors of our senior members, I would like to summarize the path KSPNO has walked and present our future goals.

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## BEFORE THE BEGINNING

Around the 1980s, there were many sporadic trials for individual or multidisciplinary approaches to oncology treatment, especially in pediatric neuro-oncology patients in each leading institute in Korea (Fig. 1). For these trials, many collaborators from pediatrics, neurosurgeons, radiation-oncologists, pathologists, neurologists, and radiologists work together.

### The beginning

In 1997, Dr. Thad Ghim who was working at Emory University in the United States, returned to Seoul Asan Medical Center to take care of pediatric hemato-oncologic patients. He was privately frustrated by the lack of multidisciplinary approach to patient care, particularly in pediatric neuro-oncology in his clinic. Therefore, he decided to start the multidisciplinary clinic at the Seoul Asan Medical Center.

As mentioned earlier, there were also these demands in other institutes. To meet these needs, the Korean Pediatric Neuro-Oncological Study Group was formed in March 1999. As a result of this efforts, the 1st Pediatric Neuro-Oncological Sym-

posium (Fig. 2) was held with specialists from various fields, including pediatric oncologists, pediatric neurosurgeons, pediatric therapeutic oncologists, neuropathologists, and pediatric neurologists in October 1999. At the symposium, they discussed the recent advances and empathized the necessity of multicenter studies.

PNET, Medulloblastoma, Ependymoma																					
1. 초발예																					
A 군: 방사선치료+AVP																					
B 군: 방사선치료+Interferon																					
[A] 방사선치료 완료 8주후부터 AVP치료 시작하고 매 8주마다 반복 투여함.																					
	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
X	ACNU	↑																			
R	VCR	↑																			
T	PCB																				
[B] IF는 6주 간격으로 1주일 지속투여를 3회 반복함.																					
	Day	1	2	3	4	5	6	7	#	43											
IF	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
RT		↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
2. 재발예																					
C 군: AVP																					
D 군: Interferon																					
*2세이하에서는 방사선치료는 하지않고 AVP, Interferon치료를 시작함.																					
*5세이하의 PNET환자는 수술후 1회 약물치료 실시하고 regimen을 시행함.																					
*Medulloblastoma 및 ependymoma 환자의 약물치료는 high risk환자에서 선택적으로 시행함.																					
약물요법 (AVP)																					
ACNU																					
사용방법 동일함.																					
Vincristine (VCR)																					
1.5mg/kg/day 투여																					
Procarbazine (PCB)																					
100mg/sgm/day 투여																					
방사선치료																					
Localized disease: RT alone or RT+Chemotherapy (1세이하 경우에 따라서)																					
Localized disease의 경계는 CSF cytology 및 Myelogram상 병변이 없고 CT scan에도																					
dissemination evidence가 없음을 알함.																					
CNS axis 2,500-3,000 rads																					
Posterior fossa 5,000-5,500 rads																					
Disseminated disease: RT+Chemotherapy																					
CNS axis 3,500-4,000 rads																					
Seeding area 4,500 rads																					
Posterior fossa 5,000-5,500 rads																					

**Fig. 1.** An example of multidisciplinary approaches for pediatric neuro-oncology treatment in Yonsei Cancer Center, Seoul, Korea, around the 1980s.

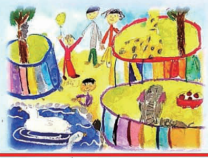


**Fig. 2.** The 1st Symposium of the Korean Pediatric Neuro-Oncological Study Group.

Motivated by these efforts, on February 16, 2001, the official Korean Pediatric Neuro-Oncological Study Group of promoters was held with 24 members (Supplementary Material in the online-only Data Supplement), following the inaugural meeting of the official Korean Pediatric Neuro-Oncological Study Group on June 1, 2002, at Seoul Asan Medical Center (Figs. 3 and 4). Most of the promoters served as pivotal executives and presidents of the society (Supplementary Fig. 1 in the online-only Data Supplement). At the meeting, the general concept and the recent trends of pediatric neuro-oncology were discussed. Dr. Thad Ghim was appointed as the 1st president. At the time, the name of the society was “Korean Pediatric Neuro-Oncological Study Group.” In September of the same year, the 1st Workshop on Treatment Protocol and Registry of the Pediatric Neuro-Oncology was held. At the 2nd general meeting in June 2003, we changed our name to “Korean Soci-



**Fig. 3.** The inaugural and 1st general meeting of KSPNO. At time the name was “Korean Pediatric Neuro-Oncological Study Group” in Korean. The name was changed to “Korean Society for Pediatric Neuro-Oncology” in 2003.

대한 소아뇌종양 연구회 학술대회 및 창립총회	
The Inaugural Symposium of The Korean Society for Pediatric Neuro-Oncology	
	
일시: 2002년 6월 1일(토) 09:00~16:00 장소: 서울아산병원 송신대 지하대강당 후원: 대한소아신경외과학회, 대한소아혈액종양학회, 대한방사선종양학회	
대한 소아뇌종양 연구회	

대한 소아뇌종양 연구회 학술대회 및 창립총회	
일 정 표	
일시: 2002년 6월 1일(토) 09:00~16:00 장소: 서울아산병원 송신대 지하대강당	
09:00~09:20	등록접수
09:20~09:30	개회사 창립준비위원장 김태형
주제 I 소아뇌종양의 일반적인 개념	
09:30~10:00 Epidemiology 10:00~10:30 Pathology 10:30~11:00 Molecular genetics 11:00~11:30 Neuroimaging 11:30~11:45 질문 및 토의	
11:45~12:00 창립총회 12:00~12:30 점심식사	
주제 II 소아뇌종양 치료의 최신지견과 방향	
13:00~13:20 수모세포종 13:20~13:40 배세포종양 13:40~14:00 영유아 뇌종양 14:00~14:15 질문 및 토의	
14:15~14:30 Coffee Break 14:30~14:50 교종 14:50~15:10 뇌실막 세포종 15:10~15:30 뇌종기종양 15:30~15:45 질문 및 토의	
15:45~16:00 폐회 및 디라피	

Fig. 4. The program of 1st meeting of the Korean Pediatric Neuro-Oncological Study Group.



Fig. 5. Society Members with invited Speaker in Lotte Hotel, 2009.

ety for Pediatric Neuro-Oncology.” Since then, we have been holding regular academic conferences and symposiums.

### Toddle

In the academic conferences (Fig. 5), several world-famous scholars, including Dr. Larry Kun (St Jude Children’s Hospital, Memphis, TN, USA), Dr. Ching C. Lau (Baylor College of Medicine, TX, USA), and Dr. Mark Kieran (Harvard Medical School, Boston, MA, USA) were invited. Their lectures gave the members new insights. Meanwhile, some invited lecturers (especially Dr. Larry Kun) were amazed by the harmonious and cooperative atmosphere of the society, despite it being a multidisciplinary academic society. He mentioned that he had never experienced such warm atmosphere in other countries.

The National Cancer Moonshot Initiative, which started in 2005, was a very important moment for our society. Many new

2005년 대한소아뇌종양학회 공동임상연구를 위한 워크숍	
일 정 표	
일시: 2005년 9월 2일(금) 오후 1:30~5:30 장소: 서울아산병원 동관 6층 제1세미나실	
Session I 소아뇌종양 공동임상연구 계획	
1:30~1:45	암정책 과제 경과보고 및 추진계획 외장 최중연
1:45~2:00	소아뇌종양 국내현재 및 향후관리프로그램 구축 (울산대)이영신
2:00~2:20	12th ISPNO 소개 및 Japanese Intracranial GCT Study Masao Matsutani, M.D. (President of the 12th ISPNO)
Session II 소아뇌종양 공동임상연구를 위한 프로토콜	
2:20~2:50	배세포종 (경북대)황성규, (연세대)서창욱, (성균관대)구홍희
2:50~3:20	수모세포종/PNET (서울대)신희영, (국립암센터)박현진
3:20~3:40	Coffee Break
3:40~3:50	병리 및 기초연구 (서울대)박성애
3:50~4:20	교종 및 뇌종기 종양 (서울대)조병규, 김일만, (성균관대)장혜림
4:20~4:40	뇌실막 세포종 (아주대)전미선, 강승희
4:40~5:00	영유아 뇌종양 (계명대)김종식
5:00~5:20	조혈모세포아식 (성균관대)성기웅
5:20~5:30	총 평 (국립암센터)김태형
6:00	만찬

Fig. 6. The program of the Workshop for “Multi-institutional Study in KSPNO” in 2005.

protocols for different tumors, including medulloblastoma, pediatric glioma, germ cell tumor, and ependymoma were developed at that time. For this project, the society organized



several committees for medulloblastoma, glioma, infant, ep-endymoma, autologous bone marrow transplantation, and basic pathology and outcome. As mentioned earlier, these committees could not have been accomplished without the background of the efforts of each institute since the 1980s. We can know these efforts from the program of the Workshop for “Multi-institutional Study in KSPNO” in 2005 (Fig. 6). Many participants came from nationwide institutes. These committees became the foundation of the research subgroups in our Society. To these days, these organizations maintain.

The protocols (Fig. 7) not only included the treatment guideline but also included the endocrine evaluation (Fig. 8) and neurocognitive function assessment. Although such effort did not

help us financially, it gave us the opportunity for multidisciplinary cooperation.

In 2011, the guidelines for Autologous Stem Cell Rescue for Infant and Young Children with Newly Diagnosed primitive neuroectodermal tumor and atypical teratoid/rhabdoid tumor were amended. Lastly, the protocols were revised in 2016.

## CHILD AND ADOLESCENCE

Regular meetings and workshops have been very important for KSPNO. Interestingly in 2009, we held the joint meeting with the Korean Cancer Association.

In 2009, we first opened our own homepage for communication. After some changes, our current homepage is [www.kspno.or.kr](http://www.kspno.or.kr).

In addition, the “A-HAE” research award was found with the financial support from Dr. Thad Ghim in 2008. “A-HAE” is another name for Dr. Ghim and it is an old Korean word for “children.” This research award is given to excellent research dedicated to increasing “survival and quality of life” in pediatric neuro-oncologic patients. Even today, the “A-HAE” research award maintains.

Also in 2010, we held the joint meeting for the 7th Asian Society for Neuro-Oncology in Seoul with “Korean Brain Tumor Society” and “Chinese-Korean Neuro-Oncology Meeting.” At that time, we introduced our KSPNO activities and KSPNO-Germ Cell Tumors Protocol.

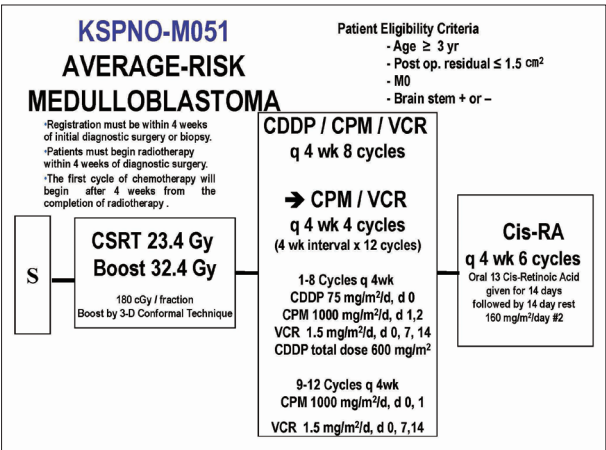


Fig. 7. An example of KSPNO protocols.

Revised 09-2-6

Guidelines for Endocrinologic Evaluation										
observation	At Dx Pre- RT	Post RT 6mo	Post RT 1 year	At completion of Tx	Post Tx 6 mo	Post Tx 1 year	Post Tx 1.5 year	Post Tx 2 year	Post Tx 3 year	Yearly
History Nutritional Hx Pubertal Hx Menstrual Hx	X	X	X	X	X	X	X	X	X	X
P/Ex HR (/min), RR (/min) BT (°C) BP (mmHg) Height (percentile) Weight (percentile) Tanner stage Testicular volume (male)	X	X	X	X	X	X	X	X	X	X
ROS Adrenal insufficiency DI/SIADH Hyperprolactinemia	X	X	X	X	X	X	X	X	X	X
Bone age	X		X	X		(X)		(X)	If indic	ation (+)
IGF-1	X						If indica		tion (+)	
Free T4, TSH	X	X	X	X	X	X	X	X	X	X
FSH, LH, Testosterone/Estradiol GnRH stimulation test	X <sup>1</sup> X <sup>1</sup>		X <sup>2</sup> X <sup>2</sup>				If indica		tion (+)	
8AM serum cortisol, ACTH stimulating test	X		X <sup>1</sup> X <sup>3</sup>				If indica		tion (+)	

X<sup>1</sup>: 진단 시 나이가 11세 이상이면 검사    X<sup>2</sup>: RT 끝난 후 첫 1년째의 나이가 11세 이상이면 검사    X<sup>3</sup>: RT 끝난 후 첫 1년째 검사

Fig. 8. The guideline of the endocrine evaluation.

## GROWTH

In 2022, even during the period of quarantine due to coronavirus disease, in celebration of the 20th anniversary (Fig. 9), the 21st regular meeting was held with many present and for-



Fig. 9. The members in the meeting for 20th anniversary in 2022.



Fig. 10. The contract ceremony of the Project for the standardization of cancer treatment in 2021.

mer members. At that time, we commemorated the past and retrospect of our society with the memorial lecture by Dr. Thad Ghim. In addition, we prospected our future and development with the lecture by Dr. Se Hoon Kim.

## Present and challenges

Now our society has two main goals. The first is the National Cancer Treatment Guideline Project, sponsored by National Cancer Center. It is a voluntary project in standardizing evidence-based cancer treatment. Although the contract (Fig. 10) was made in 2021, the actual process started in 2022. Our society chose two main tumors: medulloblastoma and germ cell tumor. Our society established a task-force committee for this project. The committee consists of five subgroups (Neurosurgery, Pathology, Pediatrics, Radiology, and Radiation Oncology). Dr. Hyeon Jin Park (pediatrician, National Cancer Center) was appointed as the chair of this committee. This project made us review the fundamental knowledge of medulloblastoma from diverse views. We hope that it will become another motivator to our society. It is still in progress.

The other important motivator is the Childhood Cancer and Rare Disease Control Group Project (Fig. 11). In 2021, this project was first initiated with the donation (300 billion KRW) to Seoul National University Children's Hospital from the late chairman of Samsung Group, Kun-hee Lee. In the next decade, our goal is to save young patients suffering from cancer and rare childhood disease in Korea. Furthermore, the bereaved families hope that the research system for new drug development will be established to the lever of other advanced countries.

Now the cancer research group has launched the treatment and research support system. Many society members have participated in these projects. In fact, we believe that these two projects will greatly inspire our society.

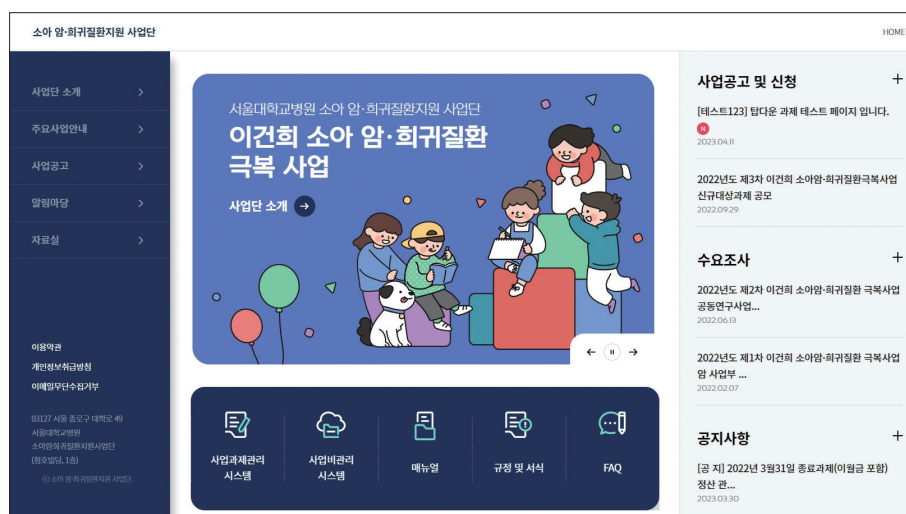


Fig. 11. The official homepage of the Childhood Cancer and Rare Disease Control Group Project.

Meanwhile, our official academic journal is titled, “*Brain Tumor Research and Treatment*” (BTRT: [www.btrt.org](http://www.btrt.org)), and it is published with the collaboration of the Korean Brain Tumor Society, The Korean Society for Neuro-Oncology, and our society. The current associated editor from KSPNO is Dr. Hyoung Soo Choi (pediatrician, Seoul National University Bundang Hospital).

### Future

Our society is small and has many weaknesses. However, it came this far with the help of our members and leaders. There was a time when existence and maintenance were our only goals. However, we firmly believe, “It’s weak at first, but it’ll be great later.” After all, we do not exist for ourselves, but for our sick children.

### Supplementary Materials

The online-only Data Supplement is available with this article at <https://doi.org/10.14791/btrt.2023.0018>.


### Ethics Statement

Not applicable

### Availability of Data and Material

Data sharing not applicable to this article as no datasets were generated or analyzed during the study.

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### Conflicts of Interest

Se Hoon Kim, a contributing editor of *Brain Tumor Research and Treatment*, was not involved in the editorial evaluation or decision to publish this article.

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The author expresses his gratitude to the not mentioned seniors, present members and executives of the KSPNO. Without their efforts, we could not have existed.