

Defining Physiatry and Future Scope of Rehabilitation Medicine

Peter K. W. Lee, M.D.

Department of Rehabilitation Medicine, Sungkyunkwan University School of Medicine, Seoul 135-710, Korea

To identify the 'physiatry' in a single word is difficult. This may be due that physiatry originated from two different fields, physical medicine and rehabilitation and focuses on assisting the general improvement of functional recovery in disabled patients. In addition, physiatry has new markets to develop; health and welfare. Therefore, the identity of physiatry will change depending on how physiatrists act in these fields. We attempt to define the physiatry from several aspects.

Key Words Physiatry, Identity, Health and welfare

INTRODUCTION

It is very difficult to define the physiatry in a single word. While the fields of ophthalmology or orthopedics deal with eyes or bones and joints, physiatry focuses on assisting the general improvement of functional recovery in disabled patients. Historically, physiatry originated from two different fields, physical medicine and rehabilitation, which makes defining this term more problematic.¹ According to the Dorland dictionary, the word physiatry is derived from the Greek words '*physio*', which means 'nature', and '*iatrke*', which means 'operation or medicine'. Therefore, the physiatry involves treating and diagnosing diseases using light, heat, cold, and electricity. Between the late 1930s and early 1940s, doctors who treated arthritis using ultrasound or

microwaves were called 'physical therapy physicians', which is the origin of the term physiatrist.

To become an excellent physiatrist, it is important to recognize the identity of physiatry. For defining the identity of physiatry, we attempt to approach from several aspects.

HISTORY AND CHARACTERISTICS OF PHYSICAL MEDICINE AND REHABILITATION

Rehabilitation medicine developed with treating disabled persons during World War II. Lieutenant colonel, Howard Rusk recognized the necessity of physical therapy for the recovery of injured soldiers during the war and introduced a rehabilitation program to the United States Army with the permission of President Franklin Roosevelt. After the war ended, rehabilitation medicine became a separate medical field in the United States. Howard Rusk noted that rehabilitation medicine was the third field medicine in addition to preventive and therapeutic medicine, and these three fields composed of the apex of a triangle. From the 1950s to the 1980s, classical inpatient neurorehabilitation was the main

Corresponding author: Peter K. W. Lee
Department of Rehabilitation Medicine, Sungkyunkwan University School of Medicine, 50, Irwon-dong, Gangnam-gu, Seoul 135-710, Korea
Tel: +82-2-3410-2811, Fax: +82-2-3410-0107, E-mail: pe194133@skku.edu
© This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0>) which permits unrestricted noncommercial use, distribution, and reproduction in any medium, provided the original work is properly cited.
Copyright © 2011 by Korean Academy of Rehabilitation Medicine

focus in the physiatric field. After this period, the main focus changed to musculoskeletal rehabilitation for outpatient management until 2000. In the past 10 years, attention was given to interventional pain management using fluoroscopy.²

There are several unique characteristics helpful for defining the field physiatry. One is patient-centered care, which means physiatrists must respond to the questions patients present using understandable terms.³ Another is a tolerance for uncertainty.⁴ Physiatry usually deals with chronic diseases, such as chronic low back pain, hemiplegia, or tetraplegia. These diseases are often associated with uncertain diagnosis or prognosis. Therefore, patients feel anxiety, and physiatrists must relieve anxiety resulting from this uncertainty.

The most significant characteristic of physiatry is that physiatrists judge the improvement of whole functions, rather than change of specific organs. The European Union of Medical Specialists designated the International Classification of Functioning, Disability, and Health (ICF) as the core of physiatry.⁵ Several functional scores based on the ICF have been used as parameters to evaluate therapeutic effects.

PREREQUISITES FOR PHYSIATRISTS

One of the qualities that make for a successful physiatrist is of the ability to lead a treatment group. While many specialists including physical and occupational therapists, speech therapists, recreationalists, nurses, and social workers are involved in the treatment of patients in rehabilitation medicine, physiatrists must assume leadership roles in treatment groups.

Physiatrists must also provide patients practical information not just medical knowledge. Physiatry patients usually need practical information, such as where they can purchase cheap walking aids, how they can have their house remodeled to accommodate handicapped individuals, and how they can obtain a welfare card for the handicapped.

Physiatrists must have open mind and be able to constantly communicate with physicians in other departments. Since physiatry deals with diseases in subacute to chronic stages, the communication with physicians in other departments (such as neurology, neurosurgery, orthopedics, and cardiology) who treat the same patients

during acute stage is mandatory for effective rehabilitation strategies.

Weinstein⁴ suggested that the five most important qualities that physiatrists must have are listening, translating, managing, innovating, tolerance for uncertainty. Listening is the ability to hear patients' complaints without any disturbance. Translating involves the delivery of medical knowledge to the patients. Managing encompasses teaching and enabling patients and their families to self-manage. Tolerance for uncertainty involves dealing with and adequately expressing uncertainty on the etiologies and prognosis of chronic disease as mentioned above. Innovating is the ability to develop novel interventions. Most physiatric services use traditional and conventional methods that produce limited outcomes. Therefore, physiatrists must make efforts to develop innovative intervention to overcome the limitation of previously administered therapies.

ETHICAL ISSUES FOR PHYSIATRISTS

Many physiatrists face ethical problems involving the determination of therapeutic goals, introduction of new treatments or economic issues. When physiatrists set a therapeutic goal, they must take into account whether patients have enough cognitive and expressive functions to make their own decisions. In emergency situation, such as aneurysmal rupture, urgent decision-making of neurosurgeons is inevitable. However, for rehabilitation strategies, decisions made by the patients or their guardians are important. Therefore, physiatrists must consider patients or their guardians as important decision-makers.

Most common ethical issue in rehabilitation medicine may be the patients' economic problems, such as medical bills or discharge problems. Because medical insurance costs in physiatry are usually low, hospital managers encourage the early discharge of patients to shorten the hospital stay and increase the turnover ratio. However, patients and their guardians may want to stay in a hospital longer because their conditions do not significantly improve during a short admission period. These can result in conflicts between the hospital and patients which physiatrists must face.

Another economic conflict that physiatrists can face is the distribution of medical insurance funds. If two

types of treatment result in similar outcomes and pain reduction, but the cheaper option takes longer, economic conflicts can appear. Medical insurers usually want the patient to use the cheaper option because the final outcomes are similar. However, the patients can be in pain for a longer period, and so would want to receive the more expensive treatment.

Gans⁶ suggested principles helpful for addressing these problems. These include staying focused on what is in the best interest of the patient, understanding the needs of the patient and family, defining the facets of the problem in terms of the interests of the different parties. Additionally, physiatrists should consider the issue in the context of their values and beliefs and be sure not to improperly superimpose personal values on others. Finally, open and clear communication about the nature of the dilemma should be maintained.

RESIDENCY TRAINING PROGRAMS FOR PHYSIATRISTS

Residency training courses for physiatry in South Korea require 4 years after six year medical school lives followed by one year rotational internship program. The training courses can vary from hospital to hospital, but generally include inpatient care (stroke, spinal cord injury, cerebral palsy, etc.) and outpatient management (musculoskeletal pain). Diagnostic tests, such as electromyographic study and videofluoroscopic study and procedures including trigger point and intraarticular injections are also included in the training program. Recently, advances in ultrasound imaging and great interests of physiatrists in musculoskeletal part have caused residency training program to focus more on ultrasound imaging techniques. Some hospitals have specialized programs, such as burn, sports, swallowing, and respiratory rehabilitation. The Korean Academy of Rehabilitation Medicine tests the necessary knowledge for the physiatrist with a board certificate examination. The fields covered in the board certificate examination are physical therapy, neuromuscular rehabilitation, electrodiagnostic medicine, orthosis and prosthesis, pain and musculoskeletal rehabilitation, pediatric rehabilitation, cardiopulmonary rehabilitation, spinal cord injuries, neurorehabilitation, geriatric rehabilitation, and sports rehabilitation.

In contrasts, in the United States, the Accreditation

Council for Graduate Medical Education (ACGME) recommends that the residency program must require its residents to demonstrate competence in six areas: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and system-based practice.

FUTURE DIRECTIONS FOR PHYSIATRISTS

To promote the progress of physiatry, physiatrists should exert their efforts in several directions. First, physiatrists must make efforts to treat the impairment itself in addition to use classical compensatory techniques. In the past, it was thought that the adult central nervous system was fixed and could not be repaired. Recently, development of functional imaging techniques revealed that the adult central nervous system can recover from injury through neuroplasticity, and that this recovery can induce functional improvement. Because this recovery through neuroplasticity requires more time than compensatory techniques including one hand activity daily living, this approach is difficult to adapt in clinical situations due to economic issues such as early discharge. Moreover, insufficient scientific evidence due to the difficulty in recruiting control groups is another reason for not routinely using this technique in the clinics. However, considering the high prevalence of central nervous system injuries and advances in medical technologies, approaches based on neuroplasticity will increase.

The second focus is to build a close connection and systematic hierarchy among physiatrists working at tertiary and primary rehabilitation hospitals. According to a report by Ministry for Health in South Korea, 340 physiatrists are working at local clinics, 199 physiatrists are at small hospitals, 173 are at general hospitals, 163 are at long-stay hospitals, and 124 are at university or tertiary hospitals. All have different roles according to the hospitals to which they belong. Physiatrists who work at university or tertiary hospitals usually manage subacute patients transferred from other departments and discharge them within a set period of time. Physiatrists at long-stay hospitals care for chronic patients with little intervention and those working at local clinics manage musculoskeletal pain controls. For the effective management of patients with chronic diseases, physi-

atrists must cooperate and communicate with each other.

The third is that physiatrists must participate in the development of future technologies. Recent trends toward the fusion of medicine and technology is associated with many innovative therapies in rehabilitation fields. These include robotic therapies for hemiplegia,⁷ intelligent prosthesis for amputees,⁸ and stem cell therapies for treating cerebral palsies.⁹

Finally, physiatrists must explore health and welfare fields as new markets. Historically, physiatrists have been accustomed to dealing with secondary functional disturbance caused by neurological, musculoskeletal, and cardiovascular diseases. As the population matures, people devote more attention to exercise therapy for promoting health and well-being; this needs physiatrists. Dr. Laskowski,¹⁰ Chairman of Mayo Clinic Sports Center, investigated problems caused by obesity and lack of exercise based on this concept. Dr. Laskowski noted that two-thirds of Americans are overweight or obese, and more than 70% do not exercise on a regular basis. This lack of exercise is serious for children, and childhood obesity has increased three times compared to the past generation. Obesity and lack of exercise increase the incidence of type 2 diabetes mellitus and osteoarthritis, which cost 147 billion dollars in medical expenses (10% of total medical costs in 2008). Fortunately, these alarming trends can be reversed by exercise and adequate treatment. The American Sports Medical Society recommended exercise to combat obesity by holding a campaign entitled "Exercise is a Medicine". These areas can be specialties in rehabilitation medicine and physiatrists can serve as specialists.

As the above-mentioned new markets in the rehabilitation medicine fields grow, the demand for physiatrists will increase. The number of disabled persons with increasing age also contributes to the increasing demand for physiatrists. However, considering that not only physiatrists but orthopedic surgeons, anesthesiologists, and family medicine physicians also treat musculoskeletal systems, an increased number of physiatrists may not be reasonable. Hogan et al.¹¹ investigated the supply of and demand for physiatrists and found that demand for physiatrists will continue to exceed the supply through 2015. They reevaluated the demand for physiatrists and came to the same conclusion based on data from 1998.¹² When I was the chairman of the board of governors in the Korean

Academy of Rehabilitation Medicine in 2001, we had a chance to investigate the future supply of and demand for physiatrists with collaboration of the Korean National Institute of Health. At that time, we did not reach a definite conclusion. Depending on our point of view, the number of physiatrists required in South Korea could increase or decrease. Recently, this supply and demand has become a hot issue again. Consequently, the Korean Academy of Rehabilitation Medicine decided to perform intensive research on this issue. It is possible that the results of this study will determine the number of physiatrists needed in South Korea within a year.

As the number of physicians is increasing at a fast rate, competition will be inevitable and physiatrists must be superior in terms of the quality of medical care. Recently, a movement has occurred in which physician reimbursement is based not just on provision of service, but on the quality of care provided and safety measures taken. This is called 'value based purchasing (VBR).'¹³ This movement favors physiatrists because these professionals are already accustomed to managing patients with qualified care. Therefore, all physiatrists must take into account the VBR being a new opportunity for physiatrists and make efforts to develop their own niche.

CONCLUSION

The identity of physiatry is not easy to define. As commented in the introduction, physiatry originated from two different fields, physical medicine and rehabilitation and now these are musculoskeletal pain medicine and neurorehabilitation. Now, musculoskeletal pain medicine attracts physiatrists' attention but this area also stands open to orthopedic surgeons, anesthesiologists, and family medicine physicians. Therefore, physiatrists must strengthen their competitive power as having a deep knowledge of this area. In addition, physiatry has new markets to develop; health and welfare. These new areas will give physiatrists new opportunities in the future. Therefore, the identity of physiatry will change depending on how physiatrists act in these fields.

REFERENCES

1. Dillingham TR. Physiatry, physical medicine, and rehabilitation: historical development and military

- roles. *Phys Med Rehabil Clin N Am* 2002; 13: 1-16
2. Weinstein SM. Maintaining health, wellness, and fitness: a new niche for physiatry? *PM R* 2009; 1: 793-794
 3. Lupinacci M. Developing physician leaders of patient-centered care. *PM R* 2010; 2: 983-986
 4. Weinstein SM. Defining physiatry: a tolerance for uncertainty. *PM R* 2011; 3: 1-2
 5. Stucki G. International Classification of Functioning, Disability, and Health (ICF): a promising framework and classification for rehabilitation medicine. *Am J Phys Med Rehabil* 2005; 84: 733-740
 6. Gans BM. Practicing physical medicine and rehabilitation in an ethical manner. *PM R* 2010; 2: 229-231
 7. Kwakkel G, Kollen BJ, Krebs HI. Effects of robot-assisted therapy on upper limb recovery after stroke: a systematic review. *Neurorehabil Neural Repair* 2008; 22: 111-121
 8. Chin T, Machida K, Sawamura S, Oyabu H, Nagakura Y, Takase I, Nakagawa A. Comparison of different microprocessor controlled knee joints on the energy consumption during walking in trans-femoral amputees: intelligent knee prosthesis (IP) versus C-leg. *Prosthet Orthot Int* 2006; 30: 73-80
 9. Carroll JE, Mays RW. Update on stem cell therapy for cerebral palsy. *Expert Opin Biol Ther* 2011; 11: 463-471
 10. Laskowski ER. Action on obesity and fitness: the physiatrist's role. *PM R* 2009; 1: 795-797
 11. Hogan PF, Dobson A, Haynie B, DeLisa JA, Gans B, Grabois M, LaBan MM, Melvin JL, Walsh NE. Physical medicine and rehabilitation workforce study: the supply of and demand for physiatrists. *Arch Phys Med Rehabil* 1996; 77: 95-99
 12. Hogan PF, Dobson A, Hughes J. Supply of and demand for physiatrists: review and update of the 1995 physical medicine and rehabilitation workforce study. A special report. The Lewin Group. *Am J Phys Med Rehabil* 1999; 78: 477-485
 13. Rattray M. Value-based physician reimbursement: challenges and opportunities for physical medicine and rehabilitation. *PM R* 2009; 1: 706-708