

**Mediterranean Rehabilitation Conference  
Malta, Forte S. Angelo 11-12 December 2000**

From Peregrinationes III, a publication of the  
Accademia Internazionale Melitense

**Second Session**

**The Hashemite Kingdom of Jordan**

**Dr. Khalil Abbadi M.D.**

Consultant of Physical Medicine & Rehabilitation  
Director of Arab Centre for Physical and Rehabilitation Medicine

**Introduction**

Jordan is a small country in the Middle East. It covers approximately 35,000 square miles of land and has common borders with Israel, Syria, Iraq, Palestinian authority and Saudi Arabia. Arabic is the official language while English is considered a second language and is commonly used in private and public institutions.

Jordan has few natural resources, primarily phosphate, potash from the Dead Sea, and a few other products such as limestone. Only eight percent of the land is arable. Population growth has put tremendous pressure on water, Jordan's most scarce resource. Jordan's 4.3 million population is growing at an annual rate of 3.6 percent per year, which is one of the highest population growth rates in the world. Jordan is faced with the challenge of restructuring its economy so that its most abundant resources and its under-utilised educated labour force can be productively employed to increase exports of goods and services. This is vital to Jordan's long-term economic and political stability.

Jordan has one of the highest percentages in the world of graduates in proportion to its population. The establishment of the University of Jordan in 1962 marked the inception of higher education institutions in Jordan. Since then, university education witnessed dramatic expansion and the number of public universities reached seven, while private universities reached ten.

Jordan boasts excellent health care facilities. The combination of highly qualified medical personnel, first-rate medical equipment, and accessible costs, to some extent, has rendered Jordan highly competitive in the health and medical care business. As a matter of fact, Jordan emerges as the number one referral hospital for the Middle East, catering to Arab patients' needs who find treatment in the Kingdom to be quicker, more convenient, and more cost-effective than in many other parts of the world.

With expert medical staff and advanced technology, the country's hospitals are rapidly becoming pioneers in providing health care, education and research in Jordan and the region. Jordan is a leader in cardiologic screening and treatment, in endoscopic surgery, kidney transplant, to cite a few. Subsequently, the annual mortality rate in Jordan has been remarkably reduced and life expectancy extended. If anything, this has increased the number of patients surviving with chronic diseases and disabilities who are in need of rehabilitation services.

Unfortunately, however, progress in Rehabilitation Sciences is by no means on par with other medical specialities.

A great number of people with disabilities in Jordan are to date not receiving the rehabilitation services they need. Hence, the need for establishment of a Faculty of Rehabilitation Services at the University of Jordan that would serve the needs of the local and regional communities is now a top priority in Jordan.

## **Rehabilitation Services**

The Major Rehabilitation Facilities are focussed in Amman, the capital town of Jordan, with small projects established in various provinces as governmental and non-governmental institutions and organisations.

1. Governmental Institutions: These institutions provide the medical rehabilitation services to the patients and care to the disabled persons.

- The Ministry of Health provides Medical Rehabilitation through the main Rehabilitation Centre with 30 beds for general rehabilitation, located at the General Public Hospital are 900 beds, besides small units established inside the hospitals in various provinces.
- The Royal Medical Services (Army) provide Medical Rehabilitation through the Rehabilitation departments of KHMC with 40 beds, 20 of them for Spinal Cord Injuries Unit and 20 beds for General Rehabilitation.

- The Jordan University Hospital provides Medical Rehabilitation through Rehabilitation Department mainly for in-patients and partially for outpatients.
- The Ministry of Social Development provides care and assistance to disabled people through special education institutions and vocational Rehabilitation institutions. There are about 20 special education institutions for these services in Amman and various provinces in Jordan.

2. Private organisations and institutions. There are a lot of non-governmental organisations from inside and outside Jordan providing assistance to disabled persons and a lot of private and volunteer societies providing assistance to disabled mainly in special education.

### The Cadres Working in Medical Rehabilitation

- Physicians: There are 45 physicians specialised in Physical Medicine and Rehabilitation as well as 20 Resident Doctors in this field. Some of the specialists are trained outside of Jordan.
- Physiotherapists: There are about 200 P.T., 20 of them trained outside of Jordan, 180 trained inside of Jordan.
- Occupational therapists: 58 occupational therapists qualified by Jordanian institutions, only 14 of them in Jordan.
- Prosthetists & orthotists: 36 p.o. are qualified by Jordanian institutions.

In addition to social workers and speech therapists and psychologists, there are a lot of special education specialists, most of them educated in Jordanian institutions.

## Education & Training

### 1- Jordanian Medical Council

There is a training speciality programme for physicians provided by the J.M.C. in the field of Physical Medicine and Rehabilitation: at the end of a four-year speciality training programme the candidate is sent to an examination board held by the Examination Board Committee in physical and Rehabilitation Medicine.

### 2- Physiotherapy

This field of study started in Jordan in 1967 as a three-year diploma course which was cut short to a two-year course in 1989. Holders of such a diploma in physiotherapy were called "Assistant Physiotherapists".

Less than 20 university qualified physiotherapists who were trained abroad are found in Jordan. In addition, there are about 200 under-qualified therapists who work under the supervision of the few qualified personnel in the various locations in Jordan.

### 3- Occupational therapy

The College of Occupational Therapy was set up temporarily at the King Hussein Medical Centre in 1989 with the help of the General Union of Voluntary Services. It offered the High National Diploma in Occupational Therapy; students received this Diploma but were soon employed in the Gulf and in the U.S.A. The programme was then suspended pending the transfer of this College to the University of Jordan. To date, such an initiative has not yet been realised.

### 4- Prosthetics & orthotics

The Institute for Prosthetics & Orthotics was set up in 1984, and was operating through collaboration of the M.O.H., R.M.C. and German Side (GTZ) as a three-year diploma course. This school graduates 36 P.O. Most of them are working in Jordan. This was closed in 1990.

### 5- Other rehabilitation branches

Speech Pathologists, Social Workers, Vocational Counsellors, Rehabilitation Engineers, Clinical and Neuropsychologists are scarce. It is hoped that the prospective Faculty of Rehabilitation Sciences of the University of Jordan will include some or all of these specialities in the future.

Now the top priority is to establish the Faculty of Rehabilitation Sciences at the University of Jordan for P.T., O.T., P.O. which is expected to start school year 99/2000.

## **Abstract**

Jordan's population is estimated at 4.7 million, more than five percent of whom have chronic disease problems. It is a well-known fact that comprehensive and advanced rehabilitation services can play a major role in reducing the cost of disability and dependence, and in mitigating human suffering.

Jordan is active in terms of establishing community-based rehabilitation programmes. Several workshops and courses were conducted in the last few years.

Nevertheless, these programme initiatives cannot prove a real success without the presence of well-qualified cadres in this field along with referral centres.

Against this background, a Faculty of Rehabilitation Sciences to be established at the University of Jordan comprising the four specialisations at an initial phase is needed more than ever before.

# **Electrodiagnosis Approaches in Education and Training**

**Mohamed A.R. El-Abd M.D. M.Ed**

Professor of Physical Medicine  
Faculty of Medicine University of Alexandria, Egypt

## **Introduction**

An experienced physiatrist can accomplish the task of electrodiagnosis with relevant information in reasonable time and with minimal trouble to patients. However, years of work in this field have uncovered varieties of difficulties facing junior physicians during their clinical training. Four main features emerge as core issues; two of them are concrete and measurable, while the other two are abstract in nature.

The first concrete feature is that related to the definition of the pathogenetic nature of the addressed clinical problem. The second, the easiest, is that related to the technical aspects of the task.

The first abstract feature is the recognition process of clinical and electrophysiological data. Recognition, the awareness of the nature of the encountered data after perceiving the same through our eyes, ears or hands. For example: fibrillation potentials recorded from facial muscles have to be differentiated from motor unit action potential. The second abstract feature is the problem-solving nature of the electrodiagnosis itself, which is attained through relationship identification between all the operating variables to formulate a solution of the addressed clinical problem.

Electrodiagnosis is a clinical task that entails measurement and interpretation of specific bioelectric neural and/or neuromuscular data relevant to the clinical problem under consideration to enhance its diagnostic clinical certainty. The current educational and/or training programmes in electrodiagnosis are usually centred principally around the theoretical basic foundation and the technical aspects of the different electrodiagnostic tests. Although at present such approach generally gains its support from the classical philosophy of medical education, it cannot yet guarantee the acquisition of the clear relevancy of the employed procedures to the addressed clinical problems among all trainees.

Traditionally, physician training in electrodiagnosis is carried out in an apprenticeship manner, together with selected didactic, theoretical anatomical, physiological, clinical and technical topics. Such approach does not explicitly deal with the relevancy issues of electrodiagnosis.

It is true that electrodiagnostic approaches vary according to the nature of the clinical problem at hand, and they also vary from physician to physician dealing with the same clinical problem. Yet, in all circumstances the electrodiagnostic approach is influenced explicitly by the provisional clinical diagnosis, and implicitly by the different clinical data underlying the clinical diagnosis. Such situation will limit the given electrodiagnostic approach within a narrow path that will inevitably touch the issue of its relevancy, and thus weaken the electrodiagnostic final comment or conclusion. It is the author's knowledge that such educational and training issues have not been previously considered in the medical literature.

It is the aim of this article to describe the electrodiagnostic approaches that are explicitly written by their authors and currently used in the clinical practice.

### **Electrodiagnostic Approaches:**

Literally an approach is the method used in dealing with or accomplishing something, thus it entails pursuing a planned procedure to arrive at a certain goal. Three approaches will be considered. They will be applied on the same clinical problem, namely Guillain Barre Syndrome, so as to make their comparison easier.

#### **I- J.A.Liveson Approach, 1979 Plan**

- 1- formulate the main clinical features of a given clinical problem.
- 2- pose specific questions to clarify selected data stated or pertinent to the clinical problem.
- 3- plan the electrodiagnosis specifying explicitly its goals and procedures.
- 4- perform the electrodiagnostic examination.
- 5- pose specific questions related to the electro-physiological findings in trial to settle specific given clinical data.
- 6- answer the already posed questions (item 2)
- 7- define the significance of the obtained findings i.e. diagnosis.

## **Comment:**

Liveson pointed out that his approach is an outcome of the given clinical material, and added that this will help the formulation of the plan for electrodiagnostic studies to be performed. It will also help the organisation and interpretation of data collected. He also pointed out that his plan should be able to establish and quantify the diagnosis, as well as to gather the data to argue against the alternative diagnosis and to screen for any concomitant condition.

It is the author's opinion that Liveson's approach includes all the items required for valid electrodiagnosis but in an implicit form. The specific link between the proposed clinical diagnosis and the plan for electrodiagnosis was not operationally specified. Likewise, the correlation between alternative diagnosis and the foreseen electrophysiological data was generally worked out.

## **Practical model (Guillian Barre Syndrome)**

### **I-Clinical Data:**

A 20-year-old man showed rapidly progressive weakness of both lower extremities with fingers numbness. Clinical examination revealed mild hands weakness.

The lower limbs were almost completely paralysed with intact superficial and deep sensations.

The deep tendon jerks were present and the plantar responses were silent. No cranial nerves and cerebellar abnormalities were detected.

### **II- Selected Questions:**

1- Differential diagnosis of sub-acute weakness in adult.

2- Could it be a case of Guillian Barre Syndrome?

## **Comment:**

The patient's history suggests Guillian Barre Syndrome more than any other cause of the presenting rapidly progressive paralysis such as drugs or heavy metals intoxication or other biological substances

### **III-Plan the Electrodiagnosis:**

1- Screen for polyneuropathy



2- If present, establish its characteristics

3- Exclude myopathy and anterior horn cell disease.

IV- Electrodiagnosis Examination:

1- Facial nerves motor conduction

2- Lt median nerve motor conduction

3-Lt common peroneal nerve motor conduction

4- Lt median and Lt ulnar nerves cutaneous sensory conduction

5- Electromyography for

Lt I DIO

Lt abd. pol.br.

Lt abd. digit.min.

Lt tib.ant.

Lt soleus

Lt o.oris

Lt deltoid

Lt brachio rad.

**Comment:**

The electrophysiological data are conducive to the proof of the existence of demyelination as well as axonal degeneration.

But, as the occurrence of demyelination at the proximal segments of the peripheral nerves is a characteristic feature of Guillain Barre

Syndrome, H reflex and F wave should have been carried out.

## **II-Stalberg et. al., 1996**

Stalberg labelled his approach "Strategies in Electrodiagnostic Medicine". He pointed out that this strategy is based on knowledge of three different parts:

1- knowledge of the individual diseases and their corresponding pertinent electrophysiologic findings. Such knowledge will serve as diagnostic guidelines as they determine the electrophysiological abnormalities required to support or rule out a given clinical diagnosis.

2- knowledge of the differential diagnostic alternatives of commonly encountered symptoms and the strategy needed for the electrodiagnostic examination to uncover the underlying disease.

3- knowledge of the types of neuromuscular abnormalities encountered in different internal systemic disorders.

### **Comment:**

Stalberg emphasised that electrodiagnostic strategies are not just a number of laboratory tests, like blood samples, that are prescribed by the referring doctor, but rather a series of logical steps that are tailored to the problem at hand.

The starting point of the examination is based on the background information by the referring doctor, the information provided by the patient and clinical findings.

The electromyographer forms a ranked list of possibilities that may explain the patient's problems. Based on this, he plans the details of the examination - what muscles and nerves will be studied and what tests should be performed, a plan that may be modified in relation to obtained findings.

The strategy is the plan for the investigation which aims at correct diagnosis with the available methods and skills. With an optimal strategy, the goal is reached with a minimum number of muscles and nerves tested .

Stalberg concluded that his strategy is meant to be used in the educational dialogue, and hoped to stimulate thinking around electrodiagnostic procedures and so help to rationalise and improve the quality of electrodiagnosis.

Evidently Stalberg's strategy is rather a didactic foundation for the practice of the clinical neurophysiology.

Emphasis has been much laid upon the criteria of the diagnosis, an approach that can suit the needs of designing software programs for the operation of the computerised EMG machines.

The training programs planned and implemented by Stalberg and his co-workers offer the theoretical foundations of the practice of the clinical neurophysiology, with some opportunities of hands on training for certain tests like nerve conduction studies, multi MUP analysis and others.

### **Practical Model (Guillian Barre Syndrome)**

#### 1- Strategy:

Sub-acute weakness of lower limbs

#### 2- Assess:

\*severity

\*pathology

\*distribution

#### 3- Protocol:

\*EMG

#### 4- Expected abnormal findings

\*neurography

### **MNCS**

CV, 4 nerves, (may be normal initially) decay, conduction block (abn. distal/proximal amplitude >25% in upper extremities and >40% in lower extremities, normal proximal/distal duration)

F - responses 4 nerves, delayed and few (cond. block) dist.lat. may be normal initially, later increased dist. ampl. may be initially normal, if low - severe involvement (dist. cond block or degeneration )

## **SNCS**

Amplitude of radial or sural responses are often but not always involved

Autonomic Nervous System Tests heart rate variation, often abnormal (cardiac monitoring).

Sympathetic skin response

## **EMG**

Less than 10 days from onset of symptoms

to assess earlier onset to confirm peripheral Later than 10 days from onset of symptoms if denervation - axonal involvement

### **III- problem oriented electrodiagnostic approach:**

This electrodiagnostic approach has been practised in the Department of Physical Medicine and Rehabilitation, Faculty of Medicine, Alexandria University, Alexandria (Egypt) since 1987 for Post-graduate Training Programmes in Physical Medicine and Rehabilitation.

#### **PLAN:**

- 1- certainty of the clinical diagnosis
- 2- data consistent with the clinical diagnosis
- 3- data inconsistent with the clinical diagnosis
- 4- role of electrodiagnosis
- 5- expected electrodiagnostic findings

These five steps have to be formulated by the attending physician prior to the undertaking of the electrodiagnostic examination.

The certainty of the clinical diagnosis is defined as possible, probable, definite and classical according to the weight of the consistent and inconsistent clinical data. Such process will allow the attending physician to be enlightened and explicitly work up the logical components of his decision.

The identification of the data consistent and of the data inconsistent with the clinical diagnosis will enhance the critical analysis and categorisation

of the different clinical data of the given clinical condition. Such definition is the foundation for the next item of this plan, and that is the role of electrodiagnosis .

The fourth item of the plan is the most crucial item as it determines the objectives of electrodiagnosis.

It is formulated as self contained phrases of an observable electrodiagnostic outcome, e.g demonstrate focal conduction delay at the carpal tunnel or demonstrate myotonic discharges. The determinants of these phrases are the types of correlation between the diagnostic needs of the clinical condition and the data that could be offered by electrodiagnosis The expected findings item acts as an internal feed back for the approached plan that serves as the final tying thread of the electrodiagnostic plan.

### **Practical Model (Guillian Barre Syndrome)**

1- Certainty of diagnosis probable Guillain Barre Syndrome

2- Data consistent with the diagnosis

- spontaneous onset with rapidly descending progressive weakness
- subjective sense of insecurity during walking
- normal cutaneous sensations of both lower limbs
- equivocal bilateral plantar response
- damped deep tendon jerks of both upper limbs

3- Data inconsistent with the diagnosis

- moderate decrease in muscle power localised in the shoulder and elbow muscles

of the right upper limb with marked wasting Deltoid and Spinatii

- normal motor and sensory state Lt upper limb
- brisk deep tendon jerks of both lower limbs

4- Role of Electrodiagnosis:

- demonstrate motor conduction slowing along several segments of different limbs nerves.

- demonstrate the due alterations of the CMAP from different limbs muscles
- demonstrate latency and pattern alteration of LL and possibly UL nerves SEP
- demonstrate segmental slowing of different limbs sensory nerve fibres.
- demonstrate EMG abnormalities of different limbs muscles

#### 5- Expected electrodiagnostic findings

- variable degrees of segmental motor conduction slowing with pattern and parameters alterations of CMAPs.
- possible alterations of cutaneous and deep sensory nerve fibres conduction.
- probable neuropathic EMG findings.

#### **References:**

1- Jay A.Liveson, Peripheral Neurology, F.A. Davis Company. Philadelphia, Edition 2, 1991

2 - Erick Stalberg, Bjorn Falck, Tomas Winkles, Dept. of Clin. Neurophysiology, University Hospital, Uppsala, Sweden, 1994.

3 -El-Abd M., Dept. of Physical Medicine, University Hospital , Alexandria , Egypt 1987.

#### **Abstract**

The explicit approaches employed in electrodiagnosis, namely: J.A. Liveson approach 1979, Stalberg et al., 1996 and problem-oriented electrodiagnostic approach, El-Abd, 1987 are considered. These approaches share in common planned procedures to arrive at a certain conclusion about the addressed clinical problem. The plan of J.A. Liveson approach consists of seven clinical as well as electrophysiological steps that lead to a diagnosis. Stalberg et al. approach is based on the knowledge of 3 different issues, namely: electrophysiologic findings of diseases, differential diagnostic alternatives of commonly encountered symptoms and types of neuromuscular abnormalities encountered in internal

systemic disorders. The plan of the problem oriented electrodiagnostic approach consists of five steps that have to be formulated prior to the undertaking of the electrodiagnostic examination. Each approach is described and the three approaches are applied on a same clinical problem to facilitate their comparison.

## **Rehabilitation in Portugal**

**Jorge Lains**

Head of Hospital Rehabilitation  
Coimbra, Portugal

First of all I will speak of the Portuguese laws, I will summarise them. As you know, Portugal is a democracy since 1974, so the Portuguese legislation is very modern and in theory the laws are very good. In practice, I think we are going rather well. The Constitution is very very young, as you see, but what concerns the Constitution is essential of course for our laws and for our rules.

In Portugal it was established that there should be a National Health Service. In the beginning it was totally free and now it is what we call tendentially free, meaning that it is free for those that need it to be free and the others have to pay something, which is always a little amount, and it is the National Budget that pays the health services in Portugal.

Of course one point is to ensure access for all citizens, regardless of their economic condition, to the care of preventive and corrective rehabilitation medicine - of course regardless of their religious opinions and so on, that problem does not exist in Portugal.

The second important law concerns the National Health Service, a hierarchised and ordered group of services and institutions that offer health care, dependent on the Ministry of Health. That does not mean that everything is public, I will explain that later, but everything that exists in the country, even if it is private, is considered to belong to the National Health Service in cooperation with the Ministry of Health.

In Portugal we have 3 main Regions, the North, the Centre and the South, and the autonomous regions of the islands of Madeira and Azores. As you see, there are alternative health services. If the NHS does every service OK; otherwise, the others are complementary and must cooperate with the NHS.

And for that we can have what we call conventions. Conventions are private medical doctors that have their cabinet and work under a contract with the National Health Service. These are mostly contracts with institutions, and I mean NGO's mainly. Cooperation is also provided between the NHS and social security institution and services, that are obliged to cooperate in programmes and actions for the social protection of



those in risk, namely: promotion of medical care, prevention, treatment and management, preferably to the disabled; what I mean with this is that the basic law of the health service - I'll always speak of disabled meaning they come first of all, also under the aspect of prevention, management, rehabilitation of professional diseases.

Another aspect of the developing countries is represented by occupational diseases. The main objective of the basic law of prevention, rehabilitation and integration of the disabled is to promote and assure the exercise of the rights that the Constitution of the Portuguese Republic expresses, in the domains of prevention of impairment, treatment and rehabilitation, and of the equality of opportunities for the disabled. There are several laws to protect the disabled under the aspects of employment. We also have the so-called 5% law: public institutions (not private institutions) are obliged to have 5% of employees disabled, otherwise they have to pay a fare. The essential principles, the philosophy, of the rehabilitation policy are universality, globality, integration, coordination, equality of opportunities, participation, information and solidarity. This is very important: we are in Malta, the Order of Malta is a Catholic one, and I think the humanistic principles are very well applied in Portugal also.

The fields of activity: the rehabilitation process includes all the several and complementary measures in the field of prevention, medico-functional rehabilitation, special education, medico-social rehabilitation, socio-familial support, accessibility, technical aids or devices, culture, sport and leisure and others, that aim to promote self-autonomy, that of course is our aim.

Finally, this law also deals with PMR. It is a medico-educational intervention that includes diagnostic, treatment and special techniques that try to reduce the sequels of the accident, of the disease or of the impairment, establish the mental and physical functions, use the residual skills. Physical and rehabilitation medicine must be developed and the field of activity must grow. I think it is quite important for PMR, it is in the law that it must be developed, and I think that PMR is developing very strongly in Portugal.

Who takes care, who is responsible for rehabilitation? Of course, under the constitutional law the responsibility for the NHS is of the State; the others can cooperate: State, families and NGO's. The national rehabilitation policy must have measures to adopt comprehensive plans of action that develop in the field of sectorial politics and about the responsibility of the several state departments.

So, there are the health services, the educational policies, the social security system, professional advice and education, employment, transport, urbanisation and so on, all of which are the responsibility of the State.

In '92 or '93 the third law that appeared about rehabilitation and was called the Inter-Ministerial Resolution about Rehabilitation - National Plan of Action until the Year 2000. I hope the National Plan Action for the Year 3000 will appear soon. It was a joint action of several ministers, and the main objectives are: health promotion and impairment prevention, early detection, diagnosis and advice, medical rehabilitation, new technologies and technical aids, education, professional advice and education, employment, accessibility, social integration, social, economic and law protection, education of the rehabilitation and social staff, statistics and integration.

That are the main laws, now I'm going to try and show briefly how it works in Portugal.

There are several health services, and rehabilitation is supported first of all by the NHS and all the private institutions and independent professionals that have agreements with the NHS for rehabilitation - that is the big majority, about 80%. But we have also other health services, for instance for public workers the Administration for Diseases of Public Employment, banks have their system, military also have a special health system - these are about 15%. In the private sector these are only a minority (because they are very expensive, of course), and account for about 5%.

Usually in Portugal we may speak about three different situations.

- Diseases are supported by the National Health Service and all the private institutions and independent professionals that have agreements with the NHS, and the others, as I told you, and it works more or less as I explained before, 80%-15%-5%.

But something quite different happens when the issue is not a disease. In the case of an accident, we consider two kinds of situations:

- Professional Accidents. Public works are responsibility of the State and they are supported by the NHS. In private works the responsibility is of the employer, who is usually obliged to have a professional insurance, so it is the insurance agency that has the civil responsibility.

- In the event of a Traffic Accident, if the accident is against others, insurance is mandatory and the insurance agency will pay. If it is against myself ... most of the Portuguese do not have a personal insurance because it is not mandatory and it is expensive, so the NHS will pay.

Price: in most situations the cost of the diseases and accidents is based on what we call the homogeneous diagnostic group, each pathology has its price when it goes to any hospital of the NHS. PMR and psychiatric diseases are paid by act and are excluded from the HDG, until now at least.

Now I am going to try and show you what happens since the disease or accident until the discharge from hospital, what I call the different periods.

The initial period, usually at the hospital as in-patient:

- a) in the different infirmaries/services (prevention sequels, early stimulation)
- b) in a PMR facility, the patient undergoes clinical and functional evaluations, then a treatment is prescribed, usually by rehabilitation nurses or physiotherapists. If it is not in general hospital but a PMR hospital the procedure is the same, but treatment is started by an interdisciplinary or multi-disciplinary team, of course.

After the initial period, most rehabilitation services in infirmary and PMR generally take place in a general hospital as in-patients; in day hospitals, for instance in facilities such as university hospitals we do not have beds and so they are as day hospitals, the transport is the responsibility of the hospital and the patients stay there during all the day (as out-patients, transport can also be paid for if the patient is considered unable to walk); in PMR facilities as in-patients, only for major impairments and disabilities because we have a great lack of beds for in-patient rehabilitation in Portugal.

So, most of the patients seeking rehabilitation services are out-patients due to lack of beds. As to public facilities, there are several hospitals, health centres for general practitioners; private and NGO (non profit) PMR clinics, these are a lot and growing, there is an increasing number of NGO's setting their own clinics, because they are always sure they will get an agreement with the NHS and the Government knows that it's much cheaper to make agreements with the NGO than to pay the services itself. There are also private clinics for out-patients which may also have agreements with the Health Service or work without agreement, they are two distinct categories. Finally, rehabilitation at home. We also still have a great lack of services/organisations in Portugal doing home rehabilitation, although they are getting more and more nowadays. Hospital services (few) are a possibility, and these deal with technical devices, family and patient education and rehabilitation. We are now beginning a research, we are going to treat caregivers as professionals like the others. We now are starting, with other colleagues from the European Union, a research where

we are going to consider caregiving a profession because they must feel they are useful and must receive something, and we are going to begin that project at the beginning of the year. Then there are private services, most of them also in agreement with the NHS, and several social services addressing psycho-social and instrumental ADL management.

One of the problems we have now in Portugal is that the Minister of Health is responsible for PMR, the Minister of Employment and Social Security is responsible for professional education. The State is responsible for the continuance of the rehabilitation process. They have tried to combine these two systems together, because when the patient leaves the health system he feels a great gap between the situation "as a patient" and that "as a non-patient": he is a disabled.

The Minister of Employment and Social Security has two important Departments:

1) Social Security, where we can get the statement of permanent disability/handicap, that is quite important because if one needs to find a job, that statement may be required, so that also the employer may obtain certain facilities or tax exemptions, and, of course, one can get social and economic support. We have in Portugal what we call "minimum needs" that the State pays as a minimum amount of money to those who have no opportunity to earn a living by any other means;

2) Employment. The Ministry pays for professional training and advice, or grants some kind of sheltered employment.

In conclusion, doing the summary of the situation I shall say that the rehabilitation process in Portugal is structured in two phases: the first with the Ministry of Health, dealing with the rehabilitation of disabilities after an accident, carried out in health units and most of all in functional rehabilitation centres. There is a great cut here: patients go home without protection and here the responsibility of the Ministry of Employment and Social Security begins, but there is not a continuum bridging the gap between two phases at the time being. Patients are at home and it's very difficult to know what to do and we are trying now in our facilities also to get a special department to that there may be a continuum, so that patients may arrive here at the professional rehabilitation units where they can achieve their social and professional integration in the community. I would also like to show you some figures. We have in Portugal something like 0.02 beds for 1,000 inhabitants, which is very few - in France it is 0.6 - so we need more beds, more opportunities for in-patients. In general hospitals we usually have facilities with all kind of paramedical workers, I mean physiotherapists, occupational therapists, speech therapists and rehabilitation nurses. The training of the former three professional profiles takes four years nowadays and it is considered a graduation.

Rehabilitation nurses must follow a three year course to obtain qualification as nurses and then one and half year to qualify as rehabilitation nurses. Most of them work in public hospitals, about 55%, the others are in liberal and private institutions.

## **Abstract**

The rehabilitation process in Portugal is structured in two phases: the first with the Ministry of Health, dealing with the rehabilitation of disabilities after an accident, carried out in health units and most of all in functional rehabilitation centres.

There is a great cut here: patients go home without protection and here begins the responsibility of the Ministry of Employment and Social Security, but there is not a continuum bridging the gap between two phases at the time being.

Patients are at home and it's very difficult to know what to do and we are trying now in our facility also to get a special department to that there may be a continuum, so that patients may arrive here at the professional rehabilitation units where they can achieve their social and professional integration in the community. Some numbers may be useful in this respect. We have in Portugal something like 0.02 beds for 1,000 inhabitants, which is very few - in France it is 0.6 - so we need more beds, more opportunities for in-patients.

In general hospitals have facilities with all kind of paramedical staff, i.e. physiotherapists, occupational therapists, speech therapists and rehabilitation nurses.

The training of the former three professional profiles takes four years nowadays and it is considered a graduation. Rehabilitation nurses must follow a three year course to obtain qualification as nurses and then one and half year to qualify as rehabilitation nurses.

Most of them work in public hospitals, about 55%, the others are in liberal and private institutions.

## **Disability in Lebanon and Challenges in the New Millennium**

**Khaled El Mohtar**

Director General of National Rehabilitation and  
Development Centre - Beirut - Lebanon

The problems of people with disabilities are among the serious challenges for developing countries. In Lebanon, we are facing more problems because of the long-standing civil war, and because of decreased resources for existing facilities. Unfortunately, there are no official statistics for disability in Lebanon. There have been contradictory figures, which do not reflect the accurate situation. But the WHO estimated the number of disabled people at 4-8% (150,000 - 300,000), and this number is commonly accepted in Lebanon.

The main practical role in facing the various social development difficulties is the role of Non-Governmental Organisations in Civil Society in my country, which gained a lot of experience during the last 25 years, and replaced the public tools in service provision during the Civil War.

One of the most vulnerable groups among our society in Lebanon are people with intellectual disabilities and their families. Social service agencies of various kinds along with organisations of parents responded to the demands of this group.

In spite of the shortage in economic and financial resources, and the very limited role of the public sector, we were able to create the National Union of Associations of Parents and Institutions for People with Mental Handicap. This Union is a National Service Network, which is growing to face the challenges of the Third Millennium.

The National Union of Associations of Parents and Institutions for People with Intellectual Disability (Mental Handicap) (UNAPIEI - abbreviation in French), is a Lebanese non-profit, non-religious, non-sectarian and non-political umbrella organisation. It was founded in October 1991, in an attempt to respond to the increasing demands for people with Mental Handicap. It was a big challenge for us to start such task, due to the tragic results of the long-standing civil war lasted for about twenty years. In spite of that, the umbrella was founded, and later it became an effective tool to fight for civil peace.

Nowadays, and after about ten years, we are proud to say that our National Union is not a service provider only, but is a real means towards Social Development. It is an active Regional Union having strong relations with most of similar organisations in the Region, and it represents the Arab Region in the International League of Societies for the Mentally Handicapped ILSMH - Inclusion International.

Moreover, our union has a partnership agreement with the French National Union of Parents of Inadapted Children, and its president is the vice president of Inclusion International.

## **Goals**

Since the foundation of UNAPIEI we maintain to achieve the following goals:

- Establish a comprehensive national service system for people with intellectual disability and their families.
- Create a monitoring body to co-ordinate the service provision.
- Establish platforms for changing the norms and values to meet the rights of others who are different.
- Assure the quality of provided services.
- Empower people with disabilities and their families.
- Prove the cost effectiveness of rehabilitation and education for people with disability in moral and financial terms.
- Create efficient communication with other NGO's, for quality and full participation.
- Create a pressure group to change the legislation for better social policy.
- Improve the images of mothers, sisters and daughters who are disabled or who care for people with disability.
- Reach as much as possible towards Inclusive Society, Inclusive Education, Inclusive Employment and Health Care for All.

## **Plan**

Our Union planned to reach the above noted goals through:

- Creation of a community services network all over the country, to see especially that those 8-10% of people with disabilities are getting their basic needs.
- Improving the quality and quantity of educational training and rehabilitation services for disabled people and their families.
- Organising mass-media campaigns to raise social awareness.
- Empowering the voluntary participation - benefiting from the wide range of experience during the Civil War.
- Providing international and national training programmes and updated information for technical staff.

The National Union of Parents and Institutions for the Mentally Handicapped in Lebanon is a Lebanese grass root consisting of 36 member organisations around the country, distributed as follows:

3 in North Lebanon, 8 in South Lebanon, 5 in Bekaa District, 5 in Beirut and 15 in Mount Lebanon, in addition to six organisations and six centres which are run by parents of disabled persons. All these member organisations are non governmental, non-profit, offering services around the country without any discrimination. They mainly provide the following services:

- Early Detection and Intervention
- Special Education Programmes
- Family empowerment and counselling
- Occupational Therapy
- Nursing
- Community outreach service programme - especially Mothers' Training Programme
- Welfare cares and services (in some facilities)
- Material support to the families is offered by some organisations
- Parents' Intervention (in some organisations)
- Vocational training, independent living and sheltered workshops (in some organisations)



## **Achievements**

In spite of the very limited resources and hard situation in Lebanon, especially at social-economical level, our Union succeeded in maintaining the following achievements:

- The first and second National Conferences on Children Disability in 1994 and 1995 in collaboration with the American University of Beirut
- Intensive training course for 16 educators from different organisations for 6 months in France - 1996
- Organisation of a summer camp for 31 persons with mental disability from France - 1996
- Panarab Workshop on Legislations and the UN standard Rules - 1997
- Intensive training course for the parents and self-advocates by Father Adam Gudalski - 1998
- Intensive training courses for self-advocates and the First Self-Advocate Conference - 1999
- 9 public lectures and speeches by the well-known Canadian leader Jean Vanier at the American University of Beirut - 1999
- Intensive training courses (one month) for 60 educators and some parents in Lebanon by Father Adam Gudalski - 2000
- Intensive training course for 23 educators and 2 coordinators from different organisations for one month in France - 2000

## **Beneficiaries**

Member Organisations of the Union offer direct service provision of basic needs to 1,100 persons with mental and functional disability, whereas the indirect beneficiaries are more than 5,000 persons. Most organisations are grass-root associations, they deal with low income, deprived and vulnerable population. And because they are not able to hire highly specialised staff, they heavily depend on volunteers and the job training in Lebanon and abroad.

All what was so far executed and all the services provided in the field of disability - mental and physical - in Lebanon are the burden of 125 facilities belonging to 75 NGO's. But recently the Lebanese parliament passed on May 9, 2000 the Directory Law concerning people with

disability in Lebanon which is no doubt more advanced and inclusive than any other Arab country legislation.

The Lebanese Legislators start their work from an inclusive point of view, which reflects the real situation of the disabled people. They avoided identifying the concepts of rehabilitation, welfare, precaution and public place and shelter workshops, because they consider them essential social principles that everybody agrees on. They rather concentrated on specifying the real legal situation of the association of the disabled people, and the institutions that provide services.

The first section of the law contains definition of the word disabled and a classification of types of disabilities that include visual, hearing, physical and mental disability. In addition, this section also defines the disability ID which has been issued so far to more than 20 thousand disabled people in Lebanon.

The second section contains information related to the establishment of the National Board for disabled affairs. This board will be chaired by the Minister of Social Affairs, and includes three representatives for the Ministry, four representatives from institutions for the disabled, four representatives from associations of the disabled and four representatives elected by the disabled themselves. In addition, two representatives are appointed by the Minister himself.

Section 3 contains detailed explanations of the rights from which the disabled may benefit: the right to receive health care, rehabilitation and support services, such as surgeries, x-rays, laboratories, etc. Also this legislation insists on organising awareness campaigns in all the Lebanese regions.

The Lebanese legislation guarantees to the disabled people the right to an accessible environment, which allows them to move freely. Influenced by the international standard rules, it specifies the removal of all interior and exterior physical obstacles of public buildings. It also stresses the right of the disabled people for housing, emphasising their right to obtain accessible homes in public and private housing projects. It specifies that disabled people should inhabit 5 percent of the public houses owned by the government.

Moreover, the legislation discussed the right of disabled people to education and sports. It guarantees them an equal opportunity to receive a good education in all schools, in regular classes and in special ones if needed. The government is also responsible for all costs related to this matter. Besides, it encourages the establishing of sports' teams of disabled people and asks for organising special training sessions for sport trainers and doctors.

Furthermore, the legislation emphasises the right of disabled people to equal work opportunities and social benefits. It declares that a compensation of 75% of the minimum wage will be paid for unemployed disabled people, and specifies that they should occupy three percent of the public sector jobs. Also, concerning the private sector, the institutions that have 30 to 60 jobs should employ one disabled at least.

The last two sessions of this legislation deal with general rules related to everyday life aspects. To conclude, this legislation is very inclusive and progressive. It stresses, in the long run, a very ambitious goal, which is the achievement of a higher health and social standard for disabled people in Lebanon.

Finally, and because the problem of disabled people is a real challenge, people with disabilities have received much attention in Lebanon. High priority is given to medical and physical rehabilitation by NGO's which are partly supported by the Ministry of Social Affairs and the Ministry of Public Health to cope with basic needs.

Nevertheless, I believe that more awareness and attention, as well as more co-operation on the Mediterranean as well as on international level are needed to develop the existing, and establish new means to overcome the problems of dispeled people and face the challenges of the Third Millennium in this field.

## **Abstract**

Disability is a main issue in the world, and people with disabilities are among the serious challenges for developing countries. In some countries the situation is more complex and severe for different reasons.

In Lebanon for example the number of disabled is estimated at 4-8% (150,000 - 300,000) according to the estimations of the WHO, the main reason for which was the long-standing civil war. The issue of disability is totally dealt with in 123 facilities belonging to 75 NGO's, some of which face continuous difficulty due to lack of funding and financial support.

In 1991 some social service agencies along with organisations of parents responded to the demands of people with intellectual disabilities - considered to be one of the most vulnerable groups - and created the National Union of Associations of Parents and Institutions for People with Mental Handicap (UNAPIEI), which is a national service network to face the challenges of disability in Lebanon.

UNAPIEI, which is a Lebanese grass-root non profit, non sectarian and non political umbrella consisting of 36 member organisations from all over the country, provides direct and indirect services of basic needs to more than 6,000 persons with mental and functional disabilities.

UNAPIEI has maintained to achieve many goals and to prove itself not as a service provider only, but as a real means towards social development in Lebanon and the region.

The directory law for people with disability in Lebanon, lately approved by the Lebanese parliament, is considered to be one of the most advanced , inclusive and progressive. It stresses, in the long run, achieving higher health, social, educational standards and better quality of life for disabled people in Lebanon.

However, disability is a real challenge for the world in the new millennium. To face these challenges, more awareness, more attention and more co-operation are needed at all levels.

## **Rehabilitation in Greece**

### **Xanthi Michail**

M.D., Ph.D., Psychiatrist

Greece (Hellas) is a rather small country having a population of about 10,000,000 inhabitants, mainly concentrated in large cities, such as Athens, the capital of Greece, and Piraeus, the well-known big harbour, which are linked with a total of 5,000,000 inhabitants. The speciality of PMR in Greece has been recognised since 1973, after ten years of deliberations with the Greek Government. Simultaneously, two hospital clinics of PMR were recognised as training centres for the qualification of residents in PMR. The duration of training has been determined since then to five years, including the three semesters, in the beginning, on relative specialities (Orthopaedics, Neurology and Internal Medicine) and the rest of 42 months on practice in recognised training centres of PMR, either in Greece or abroad.

During the following years, four other clinics were recognised as training centres in PMR and, nowadays, there are approximately 30 positions for the training of young doctors in PMR. After the end of their training, candidates are required to pass an oral exam as well, in order for them to obtain the speciality certification. Today in Greece there are about 140 specialists in PMR and 30 trainees. Among the specialists, there are about 30 European Boards certified in PMR, after successfully passing the exams. The total in-patient capacity of the above-mentioned training clinics of PMR is approximately 200 beds and they are all located in Athens. There are no rehabilitation beds in the rest of the country. The psychiatrists who practice in the province have organised their own private outpatient settings, mainly for musculoskeletal conditions. There are also three non-profit organisations with day centres for medical, social and educational rehabilitation of handicapped children with motor disabilities. One of them, which has been financially supported by the Government, has organised satellite rehabilitation services in four big cities. Unfortunately, state hospital services are not well structured or equipped with specialised medical and paramedical personnel, and they don't have the possibilities for global rehabilitation.

The term "global rehabilitation" defines not only medical and physical rehabilitation (which are mainly offered in PMR clinics in Greece) but also psychological support, family support, educational and vocational training, the supply of orthotics-prosthetics and rehabilitation equipment,

sexual re-education, sport and entertainment possibilities, social and professional reintegration.

Even though there are still deficiencies in the rehabilitation field, the results of its efforts are significant and they could have been more important if the Government had demonstrated more interest and care for the problems of the aged, disabled and chronic patients.

Research, technological advances, improved emergency care and well-equipped ICUs have contributed to the decrease of mortality, even though there is an increase in morbidity due to traffic accidents.

Nowadays, many people survive from traffic accidents or diseases but, due to the lack of early rehabilitation services in most hospitals, they remain severely disabled for the rest of their lives.

The previously mentioned situation comprises a severe problem and a real challenge for Greek physiatrists.

The Hellenic PMR Society has submitted many proposals to the Greek Government concerning the organisation of PMR clinics in general and specialised hospitals, day centres, outpatient clinics, home rehabilitation, long-term rehabilitation centres and convalescent homes.

We mainly underline the following:

- 1) information to medical school students of the Greek Universities, referring to programmes, tools and goals of rehabilitation (foundation of a university chair of PMR);
- 2) organisation of regional rehabilitation units, which will operate in collaboration with the university hospitals;
- 3) organisation of rehabilitation clinics in all hospitals having more than 200 beds (metropolitan and regional);
- 4) development of structured rehabilitation services and improvement of the existing ones in all Greek regions.

Moreover, proposals have been made for the organisation of specialised spinal units, stroke units, head trauma, etc.

It is disappointing that a certain number of spinal injured patients are transferred, even nowadays, from Greece to other European countries for rehabilitation services, with huge expenses covered by insurance companies.

Unfortunately, rehabilitation care in Greece is done at random and fragmented, due to:

- 1) lack of understanding from the Government of the effectiveness of rehabilitation services;
- 2) care without a well-structured support of a rehabilitation team and inadequate technical equipment for their needs in the existing PMR clinics in Athens;
- 3) the fact that there is no adequate sensitivity on the part of medical and paramedical staff regarding the rehabilitation aspects;
- 4) absence of serious programmes for accident prevention;
- 5) lack of research and continuous education for people working in health fields, especially concerning the prevention of secondary complications which maximise disabilities;
- 6) lack of specialised trauma units, with personnel experienced on management of multidimensional problems of spinal injuries with early rehabilitation services. The existing orthopaedic and neurosurgical clinics, although practising successful intervention for spinal and head injuries, do not include qualified personnel for the management and rehabilitation care of those patients;
- 7) lack of organised and co-ordinated social and psychological services, with specialised personnel, to prepare the patient to accept his/her deficiency;
- 8) absence of adequate education and informative brochures, for the patient and his/her family, concerning points of interest in relation with his/her disability (sexuality, pain, architectural and social barriers, etc.);
- 9) absence of a unified law, regarding insurance companies, for disability compensation and provision of wheelchairs and other rehabilitation equipment;
- 10) lack of organised out-patient clinics for long-term care and management of acute problems, for the disabled to avoid expensive in-patient hospitalisation;
- 11) lack of accessibility in public services, hospitals, public transportation, churches, etc., which constitutes the most serious problem for social interaction.

Finally, I would like to focus on global rehabilitation, having as prerequisites an organised system of services and well co-ordinated rehabilitation teams.

This system must provide continuous and life-lasting care to citizens and mainly contribute to handicap and disability prevention through social integration or reintegration.

## **Abstract**

The specialty of PMR in Greece has been recognised since 1973 and the duration of training is five years. Today in Greece there are about 145 specialists in PRM and 30 trainees. The total in-patient capacity of the 6 clinics [recognised as training centres in PMR] is approximately 200 beds and they are located all in Athens. Moreover there are three non-profit organisations with day centres for medical, social and educational rehabilitation of handicapped children with motor disabilities, but there are no hospital rehabilitation services for children.

Even though there are still deficiencies in the rehabilitation field, the results of its efforts are significant.

The Hellenic PRM Society has submitted many proposals to the Greek Government concerning the organisation of P R M clinics, day centres, outpatient clinics etc. under a National Health system of services. It is disappointing that a certain number of spinal injured, stroke or head trauma patients are transferred, even nowadays from Greece to other European countries for rehabilitation services with huge expenses covered by insurance companies.



## **Rehabilitation in Cyprus**

**Nicolas Christodoulou, M.D., S.P.M.R. (GR), Ph.D.**

Clinic of Physical Medicine and Rehabilitation, Limassol - Cyprus

Cyprus, as you know, is a small country, our population is less than 1,000,000, so everything is in the small scale and simpler than in large countries.

In Cyprus the Health Service is divided into two sectors, the public and the private, which are completely separated.

In the public sector there are primary services for Rehabilitation in each District Hospital.

In the Nicosia General Hospital there is a "Paraplegic Wing" for the rehabilitation of spinal cord injuries.

In the private sector there are institutions and private clinics:

The "Cyprus Red Cross Paediatric Rehabilitation Centre" in Limassol is an institution which works with donations by the Cyprus Red Cross, the Government and people and covers general musculoskeletal paediatric problems.

The "Theotokos Institution Paediatric Rehabilitation Centre", also in Limassol, is for handicapped children who also suffer from mental retardation. Its expenses are covered in some extent by the Government and the rest by private funds and children's festivals organised for this purpose.

The "Bank of Cyprus Oncologic Centre" in Nicosia has organised recently a cancer rehabilitation department for patients who need this kind of service.

The "Veterans Stroke Rehabilitation Centre" in Palodhia of Limassol accepts patients with strokes, as well as patients with musculoskeletal disorders.

There are 2 "Units of Cardiac Rehabilitation" in Limassol and in Nicosia for patients with cardiac problems.

The patients have to pay by themselves.

In Limassol there are 3 private "Clinics of Physical Medicine and Rehabilitation" in which patients are treated in all aspects of rehabilitation according to their problems (main problems are: low back pain, cervical syndrome, joint problems, strokes, head injuries, chest rehabilitation, sport injuries etc.) Patients have to pay by themselves or by using their private insurance or working funds.

## **Funding**

In the public sector poor patients and public employees do not pay, except for a small contribution for the drugs and the beds. All the other patients pay the 20%, 30% or 40% of the costs of the service needed, according to their income.

In the private sector, the patients do not pay in institutions.

Especially for children's rehabilitation there is a fund called "Radiomathon for Children with Special Needs" which covers the biggest percentage of financial needs: every year a great effort is made through the TV and radio to collect this money for children's rehabilitation. In private clinics the patients pay themselves, by private insurance or by their medical working funds.

## **Proposals for a National Health Insurance Scheme**

Since 1992 we have been discussing a reform in the Cyprus Health System after a study done by Consultants from abroad. The study tries to unify the two sectors under one body, "The National Health Insurance Fund". All Cypriots will pay to this Fund a percentage of their monthly earnings.

The objectives of the Scheme are:

I Equity in the finance and provision of comprehensive health care for all Cypriots.

II Efficiency in the delivery of health care, in particular high standards of quality at reasonable cost.

III Containment of cost inflation created by demography, technological advance and perverse incentives.

The Scheme will cover the equitable provision of comprehensive health care at primary, secondary and tertiary levels, for the whole of the population of Cyprus. Rehabilitation will be covered in all levels. Services provided under the Scheme will be largely free at the point/time of delivery.

Neither public nor private sector physicians, clinics, hospitals or other providers will be excluded from participation in the Scheme, provided that they meet acceptable standards of quality and costs. Under such circumstances, if the public sector does not create more rehabilitation services, in the private sector we are ready to create multidisciplinary rehabilitation centres to cover the increasing needs for rehabilitation in Cyprus and asking physiatrists from abroad who are interested to come and work in Cyprus (the island of love).

Finally, I would like to say something about the Cyprus Scientific Society of Physical Medicine and Rehabilitation, established in 1987 with the aim of promoting our speciality in Cyprus by meetings, communications, discussions, lectures, congresses etc. Still today, unfortunately, the speciality of PMR is practised only by five physicians, one of the reasons being that there is no medical school in the University of Cyprus.

Medical students going abroad are advised to follow other specialities and our Society cannot get in contact with them at the time of their crucial decision of which speciality to follow.

## **Abstract**

In Cyprus the Health Service is divided into two sectors, the public and the private, which are completely separated.

In the public sector there are primary services for Rehabilitation in each District Hospital. In the Nicosia General Hospital there is a "Paraplegic Wing" for the rehabilitation of spinal cord injuries.

In the private sector there are institutions and private clinics:

The "Cyprus Red Cross Paediatric Rehabilitation Centre" in Limassol is an institution which works with donations by the Cyprus Red Cross, the Government and people and covers general musculoskeletal paediatric problems.

The "Theotokos Institution Paediatric Rehabilitation Centre", also in Limassol, is for handicapped children who also suffer from mental retardation. Its expenses are covered in some extent by the Government and the rest by private funds and children's festivals organised for this purpose.

The "Bank of Cyprus Oncologic Centre" in Nicosia has organised recently a cancer rehabilitation department for patients who need this kind of service.

The "Veterans Stroke Rehabilitation Centre" in Palodhia of Limassol accepts patients with strokes, as well as patients with musculoskeletal disorders.

There are 2 "Units of Cardiac Rehabilitation" in Limassol and in Nicosia for patients with cardiac problems. The patients have to pay by themselves.

In Limassol there are 3 private "Clinics of Physical Medicine and Rehabilitation" in which patients are treated in all aspects of rehabilitation according to their problems (main problems are: low back pain, cervical syndrome, joint problems, strokes, head injuries, chest rehabilitation, sport injuries etc.) Patients have to pay by themselves or by using their private insurance or working funds.

Funding. In the public sector the poor patients and the public employees do not pay except a small co-payment for the drugs and the beds. All the other patients pay the 20%, 30% or 40% of the costs of the service needed, according to their income.

In the private sector, the patients do not pay in institutions.

Especially for children's rehabilitation there is a fund called "Radiomathon for Children' ith Special Needs" which covers the biggest percentage of financial needs: every year a great effort is made through the TV and radio to collect this money for children's rehabilitation. In private clinics the patients pay themselves, by private insurance or by their medical working funds.

## **Rehabilitation Medicine in Israel**

### **Haim Ring**

Loewenstein Rehabilitation Centre, Raanana - Israel  
Sackler Faculty of Medicine, Tel Aviv University, Israel

I'm very happy to be here again as a Jewish physician and hope that through the years Jewish physicians will contribute to the Maltese Health System.

### **Introduction and Historical Background**

The story of rehabilitation medicine in Israel started just after the War of Independence in 1948. On the instruction of Prime Minister David Ben Gurion, wounded soldiers were sent to Tel Hashomer general military hospital, then under Professor Chaim Sheba. At that time there were two wards for treating these patients: one for those with spinal cord injuries and another for limb amputees. These units were under the management of Professor Ernst Spira. All the traumatic blind were placed in the Military Hospital in Jaffa, south of Tel Aviv.

A rehabilitation service already in existence, at the Hadassa Hospital in Jerusalem, gave comprehensive treatment, mainly to poliomyelitis victims and rheumatology patients. In 1946 an institution for patients with tuberculosis and various disabilities was opened near Raanana, by the Sick Fund of the Workmen's Compensation Organisation. Later this institution began admitting polio victims and moved into Raanana proper under the name of the Loewenstein Rehabilitation Centre. Outside this institution, disabled patients were hospitalised in one of the few small institutions all over the country, or were sent home.

The Israeli Physical Medicine and Rehabilitation (PMR) Society was created in 1950 by Professor Emil Adler, who chaired the PMR Department at Hadassa Hospital. Over the years that followed a few rehabilitation units were added to the Tel Aviv and Haifa municipal hospitals. It should be noted that wars, polio epidemics, road accidents and industrial injuries have all acted as catalysts in the enhancement of rehabilitation services.

### **General Structure**

Today there are two major rehabilitation centres, both affiliated to the Tel Aviv Medical School: the Loewenstein Hospital Rehabilitation Centre in Raanana with 240 beds (also a WHO Collaborating Centre) and the Sheba

Medical Rehabilitation Section in Tel Hashomer, with 60 beds. Additional rehabilitation beds exist at the Hadassa Hospital in Jerusalem, the Ichilov Medical Centre in Tel Aviv, and the Bnei Zion Hospital in Haifa.

Hadassa's Rehabilitation Department at Mount Scopus Hospital is affiliated to the Hebrew University Medical School. Besides the general rehabilitation structure in Israel, there is a separate system for paediatric and geriatric rehabilitation.

The total number of active beds is 450, representing about 1% of the hospital beds in Israel. Outpatient community services run clinics in physical medicine and home care in all major towns and cities in the country, although they are now insufficient in number.

### **Professional Organisations and Activities**

Within our clinical activities, emphasis is placed on the following pathologies: stroke, spinal cord injury, traumatic brain injury, limb amputation, rheumatology, peripheral nerve injuries and musculoskeletal disorders. Most of the inpatient rehabilitation beds are devoted to brain injury (vascular or traumatic), spinal cord injuries, and amputation of limbs.

The following aspects are incorporated into our clinical work: electrodiagnosis, neuropsychology, speech pathology, sexual counselling, vocational rehabilitation, functional evaluation, prosthetics and orthotics, technical aids, sports for the disabled, biomechanics and kinesiology, and functional electrical stimulation of upper and lower limb.

Rehabilitation specialists in our country are involved in various fields such as:

- disability assessments for the Social Security service, the Ministry of Defence, the Ministry of Health, the Ministry of Labour and Welfare and Workmen's Compensation Disability Committees;
- sports medicine;
- sports for the disabled, paralympics;
- counselling for organisations for the disabled;
- pain clinics;
- diagnostic electrophysiology (EMG, evoked and cognitive potentials);
- medical ethics and law societies;

- history of medicine.

Senior members of our society are active in international PMR organisations, either as members of the Board\* or in specific activities. They are also members of the Editorial Boards of prestigious PMR scientific journals: Clinical Rehabilitation, Disability and Rehabilitation, European Journal of Physical Medicine and Rehabilitation, Brain Injury, Spinal Cord, EMG and Clinical Neurology, American Journal of Physical Medicine and Rehabilitation and Europa Medicophysica.

Rehabilitation specialists have been asked to help in the establishment of rehabilitation services in various developing countries, as well as introducing rehabilitation into teaching curricula all over the world.

As a result of all these activities, and a Ministerial Report commissioned by the General Director of the Ministry of Health in 1990, the discipline has been recognised as "preferred profession" by the Israeli Medical Association and the relevant authorities. Under this definition PMR specialists and others (pathology, anesthesiology, etc.) have received an increase in basic and gross salary. This is made in order to encourage young doctors to join the discipline.

### **PMR Speciality Programme**

The basic requirements for becoming a PMR specialist are: a study period of 5 years, of which 3 of the first 4 years are devoted to rehabilitation medicine and the rest to internal medicine and basic sciences (6 months each). The last year is divided in a way making it possible to choose three subjects out of six: neurology, neurosurgery, orthopaedics, urology, child development and geriatrics. Written (part A) and oral-clinical (part B) Board examinations by the Scientific Council of the Israeli Medical Association (IMA) are mandatory in order to obtain the title of specialist in PMR. The Chairman of the PMR Board of Examinations is a member of the Internal Medicine Board of the IMA Scientific Council. After becoming a PMR specialist, graduates choose to work either in neurological, orthopaedic or other rehabilitation subspecialties, or in the growing field of community rehabilitation.

### **Teaching - the Post-Graduate Programme**

There is a 3-year programme of rehabilitation medicine through the Sackler Faculty of Medicine (Tel Aviv University School of Continuing Medical Education). Sessions take place once a week. Each meeting is 4 hours in duration, with 2 hours for each of two parallel courses. The programme covers all areas of rehabilitation medicine, including the 6 basic sciences and related subjects. After fulfilling the requirements of this

programme residents may apply for a Diploma and Master's degrees in PMR.

### **Teaching Undergraduates**

The teaching load is progressively increasing, as most of the allied health professions are becoming academic, and their curricula include rehabilitation as a major component. Medical students spend 3-4 weeks under close supervision in an academically affiliated rehabilitation hospital with a structured teaching programme.

New teaching activities start now in the first, second and fourth years. Rehabilitation specialists are also involved in teaching programmes in neurology, orthopaedics and sports medicine.

### **The Israeli PMR Society (IPMRS)**

The IPMRS consists of 160 members; 90 are certified physiatrists, and the rest are from allied medical professions and other medical specialities (geriatrics, family medicine, paediatrics). The members meet twice a year at scientific meetings. One is usually within the framework of the Israel Medical Association Conference. These congresses often attract many colleagues from other specialities. The Society regularly publishes a bulletin, called Shikumada, which contains information about the Society's activities, reports on scientific meetings around the world, abstracts of scientific publications by members of the Society, etc. The Society undertook the initiative to organise the First Mediterranean Congress of Physical Medicine and Rehabilitation in May 1996.

### **Research Activities**

The major fields of research are:

- functional assessments in rehabilitation;
- physiology and management of pain;
- electrophysiology, electromyography, evoked potentials, cognitive potentials;
- clinical correlates of neuroimaging;
- fertility and sexuality in the disabled;
- long-term complications of brain and spinal injuries, amputees, polio victims, etc.;



- biomechanics, orthotics and prosthetics;
- functional electrical stimulation;
- ethics in rehabilitation;
- neuro-urology (neurogenic bladder).

In all these issues rehabilitation specialists have published in relevant peer-reviewed professional publications, as well as in books and monographs.

## **The Future**

Various major goals are visualised:

(1) The expansion of rehabilitation services into the community, either as a part of the rehabilitation centres' activities, or as independent care. The vast majority of our patients are discharged home, and we still lack facilities in the community for regular follow-up and continuation of treatment. Our aim is to create good cooperation between the rehabilitation centres and family physicians, in order to give better rehabilitation services in the community. As examples, cooperation with neurologists initiated a rehabilitation programme for multiple sclerosis patients and with paediatricians led to programmes for children with disabilities.

(2) Integration with basic scientific disciplines in research and teaching. Research projects in cooperation with physiologists, biochemists biophysicists and medical engineers will help to better understand the mechanisms of injury and the processes underlying recovery. This will evolve into clinical applications improving the outcomes of rehabilitation treatments.

(3) Collaboration between neighbouring systems in our region and in the Mediterranean Basin. Until now political barriers have prevented us from experiencing fruitful cooperation with our neighbouring countries, but the first steps have now been taken.

(4) Participation in various prevention programmes through the media and community programmes. We feel that more should be done in the fields of prevention of stroke, traumatic brain injury and spinal cord injury (road and industrial accidents) as well as diabetic foot care to avoid amputation, and the like.

(5) Increasing the awareness of the necessity of our speciality among policy-makers. Larger budgets and facilities are needed to overcome the shortage of rehabilitation treatment.

The above-mentioned Ministerial Report indicated the need for two new rehabilitation departments (one in the north-eastern part of the country and another in the southern city of Beer-Sheba), and the addition of about 50 specialists. The definition of 'preferred profession' is a step in the right direction. We are continuing with our efforts to improve the situation.

\* By the time this paper is published, Prof. Ring will be President-Elect of the International Society of Physical and Rehabilitation Medicine (ISERM).

## **Abstract**

The rehabilitation system in Israel exists since the creation of the State in 1948 and dealt at the time with military injuries, then with the victims of polio epidemics. In the last decades much attention has been paid to stroke and traumatic brain injury rehabilitation. The main rehabilitation facilities by now are in the centre of the country with some representation in Jerusalem and Haifa.

Community based rehabilitation (CBR) is expanding. The specialty of Physical Medicine and Rehabilitation (PMR), detailed in the text, is provided by wards and centers accredited by the Scientific Council of the Israeli Medical Association. A continuing medical education program in PMR exists in the Tel Aviv University Medical School.

Research is performed in all the relevant issues including technological/innovational ones. Rehabilitation specialists are involved in different aspects of medical and public activities in the country, alone or in conjunction with other disciplines. They are also involved in international professional activities as well as in scientific publications as authors, referees or members of the board of first line international journals. Several fields were identified for development in the future.