SYLLABUS

TC41: Neurologic Education

Monday, November 14, 2011 14:45 - 18:15 Hall 2

Marrakesh, Morocco, November 12-17, 2011

XXth WORLD CONGRESS OF NEUROLOGY

XXth WCN 2011 MARRAKESH World Congress of Neurology

WFN

SMN SOCIETE MAROCAINE DE NEUROLOGIE

WCN Education Program

Monday, 14 November, 2011

14:45-18:15

NEUROLOGIC EDUCATION

Chairperson: **Man Mohan Mehndiratta**, *India*

14:45-16:15 PART I

LEARNING THROUGH HISTORY OF NEUROLOGY: HOW DID DOYENS IN NEUROLOGY TRAIN & TEACH?
Man Mohan Mehndiratta, *India*

BOARD EXAMINATIONS IN NEUROLOGY"- FROM PRACTICAL ISSUES TO SKILL AND KNOWLEGE
Wolfgang Grisold, *Austria*

16:15-16:45 *Coffee Break*

16:45-18:15 PART II

RESIDENCY TRAINING IN EUROPE
Walter Struhal, *Austria*

PHYSICIAN READINESS TO EXPERT PROGRAM (PREP) PROGRAM
Tissa Wijeratne, *Australia*

NEUROLOGY TEACHING-DEVELOPED AND DEVELOPING COUNTRIES PERSPECTIVE (RESOURCE LIMITED COUNTRIES)
Mohammed Wasay, *Pakistan*
Man Mohan Mehndiratta, *India*

Dr.M.M.Mehndiratta, M.D, Dip. N.B.E (Med.) D.M (Neurology) MNAMS, FRCP (London), FRCP (Edinburgh), FRCP (Glasgow), FIAN, FICP, FIACM, Professor of Neurology

Convenor: Teaching Course in Neurologic Education
WCN 2011 September 14th

Introduction

Every physician will make, and ought to make, observations from his own experience; but he will be able to make better judgment and faster observations by comparing what he reads and what he sees together.

John Friend, History of Physic, 1725

The past is always with us, never to be escaped; it alone is enduring; but, amidst the changes and chances which succeed one another so rapidly in this life, we are apt to live too for the present and too much in the future.

Sir William Osler, Aequanimitas, 1889

Knowledge always desires increase; it is like fire, which must first be kindled by some external agent, but which afterwards propagates itself.

Samuel Johnson, Letter to Drummond, 1976

Teaching Course in Neurologic Education

- Learning through history of Neurology: How did doyens in Neurology train & teach?
  Man Mohan Mehndiratta (India)

- "Board examinations in Neurology"- from practical issues to skill and knowlege.
  Wolfgang Grisold (Austria)

Coffee Break Contd.

Teaching Course in Neurologic Education Contd.

- *My encounter with most difficult case: Experience Based Approach*
  Walter Struhal (Austria)
- *Physician Readiness to Expert Program (PREP) program*
  Tissa Wijeratne (Australia)
- *Neurology Teaching-Developed and developing countries Perspective (Resource limited countries)*
  Mohammad Wasay (Pakistan) &
  Man Mohan Mehndiratta (India)

Board examinations in Neurology

Wolfgang Grisold, MD, Prof.,

Examination committee UEMS/EBN, and Education committee WFN

Wolfgang.grisold@wienkav.at

Content

- What is a neurologist ?
- Levels of education.
- Residency and Training content.
- Assessment.
- Board examination, what can be examined ?
- The development of UEMS/EBN.
- UEMS EBN: structure and contributions.
- Results.
- There is always room for improvement.
- Sources.

Definition of a neurologist

- Training periode
- Training content
- Local needs and specifications
- Knowledge
- Skills
- Attitudes

Levels of education

- **Pregraduate**
- **Postgraduate**
- **Residency, training**
- **Qualified neurologist: CME/CPD**

Residency/training

- Definition/Curriculum
- Inclusion into a training program
- Content of the training program
- Practical issues/Skills
- Attitude
- Training issues
- Training center
- Tutor, mentor
- Rotation
- Content of the training center

Feedback
Quality issues

Types of assessment

- **Interim assessment**
- **End of training assessment**

Inclusion into a training program

- Based on test results
- Judgement of the trainer
- Other

Training

- Paid/unpaid
- Tuition
- Percentage of structured training, teaching/routine work
- Individual help: Tutor

Interim assessment

- Participation at yearly exit examinations (WEB)
- Interim examinations
- DOPS
- Simulated Hand-off Experience (OSHE)
- CEX
- Mini-CEX Scores
- Web based learning

What can we examine ?

Professionalism	Knowledge	Skills
Impression.	Yes.	Difficult.

National institutions guarantee that the canditate fulfills Criteria (EU- allowed to practice)

UEMS-EBN

- Examination decided 2003

- First examination ENS , Milan 2009
- Second, Geneva 2010
- Third, Lisbon 2011

- Next: Stockholm 2012

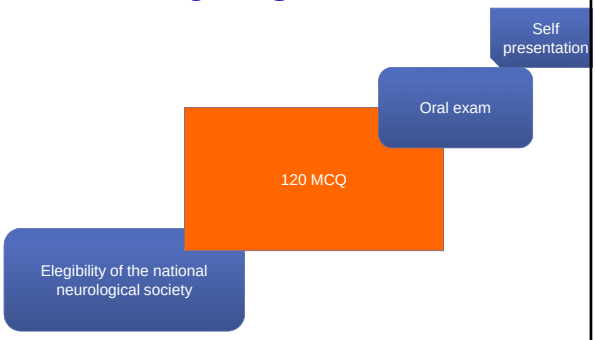
Decision making

- Decision 2003- First exam 2009.
- Financial burden
- Exam theory, validity
- Lawsuite
- Reproducibilty, reliability
- Skills
- Oral: Killer-questions,
- Expert opinions
- Preexam

Training program

- University based (private, state)
- National health system
- Individual hospitals (e.g. private owners)

UEMS EBN

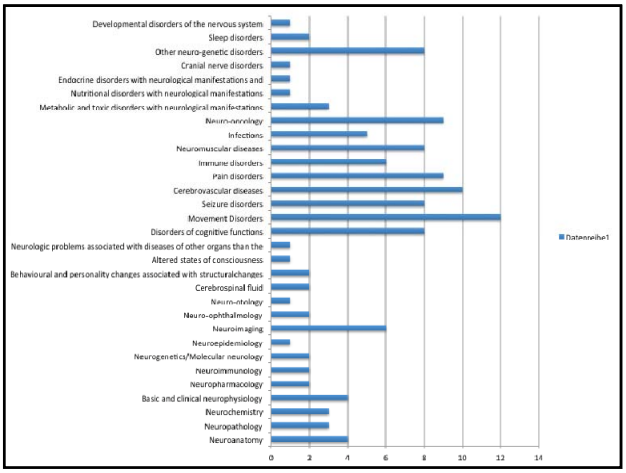


Eligibility of the national society

- UEMS member countries
- Turkey
- Neurologists, or in the final stage

Question sources

- Scientific boards of ENS, EFNS
- Movement society
- European stroke society
- Board members of the UEMS/EBN
- Future: e-brain



120 MCQs

- Topics: Website
- Format: single best answer
- Quality assessment:
- 1) Exam committee (website)-scoring
- 2) Ege University: editig and scoring
- 3) Final editing (UEMS/EBN)

120 MCQs

- **Passing limit**
- **Time**
- **Evaluations: secret**

Preparation

120 MCQs, 4 Cases

Oral exam

- **Structured;**
- **Case vignettes**
- **Most likely diagnosis 4**
- **Most likely investigations 4**
- **Therapy 4**
- **Examiners, structured answers**

Oral exam

- Pros and cons oral exam
- Very structured
- Leaves no place for interpretation or discussion

Self presentation

- About: training, scientific work,
- Case presentation of own choice

Results

- MCQ (120) 75 %
- Cases: (each max 12 points): 75 %
- Self presentation up to 3 points

Written exam

Table of statistics summary	2011	2010	2009
Number of examinees =	18	16	6
Number of items on test	120	120	120
Maximun score =	106	109	98
Minimum score =	75	78	77
Mean =	92.9	93.3	89.7

The exam is consistent with my Neurology residency education.

	1 2 3 4 5 6 7 8 9	2011	2010	2009
Written		6.00	7.09	7.17
Oral		5.92	6.67	7.00

Result

- **Fellow of the UEMS/EBN**
- **Sign of excellence**
- **Presently no legal value**

Development:

- MCQ: Passing limit (e.g. Angoff)
- Oral: Replaced by a decision making tool: either EMQ or key feature .

What for ?

- Sign of excellence
- Equal: Austria, Belgium
- Application
- Vision: European societies may adapt in part or as a whole

WFN

- Structured content
- Investigation- worldwide questionnaire
- Is there a world concept ?
- Offer on a structured basis.

WFN

Continents Needs. Diverse medical systems.	Training-duration Content Qualification
Number of neurologists. Profile. Educational systems.	WW-training baseline WW structured definition

Training Programs

- UEMS-EBN-Chapter 6 (www.uems.eu).
- Marco T. Medina et al. Developing a neurology training program in Honduras: A joint project of neurologists in Honduras and the World Federation of Neurology. Journal of the Neurological Sciences 253 (2007) 7–17

- C. Pontes Chairman.
- **Recommended core curriculum for a specialist training program in neurology**
- **European Journal of Neurology**
- Volume 12, Issue 10, pages 743–746, October 2005

Sources

- UEMS/EBN website: ttp://www.uems-neuroboard.org/ebn/
- Neurology atlas, WHO, 2004; http://www.who.int/mental_health/en/
- UEMS/CESMA: http://admin.uems.net/uploadedfiles/1386.pdf

References 1

- Morris A, et al. Practical experience of using directly observed procedures,mini clinical evaluation examinations, and peer observation in pre-registration house officer (FY1) trainees. Postgrad Med J 2006;82:285–288. doi: 10.1136/pgmj
- .2005.040477
- Farnan JM, Et al. Hand-off Education and Evaluation: Piloting the Observed Simulated Hand-off Experience (OSHE). J Gen Intern Med 2009; 25(2):129–34 DOI: 10.1007/s11606-009-1170
- Cook,DA, et al. Effect of Rater Training on Reliability and Accuracy of Mini-CEX Scores: A Randomized, Controlled Trial. J Gen Intern Med 2008. 24(1):74–9 DOI: 10.1007/s11606-008-0842-3

References 2

- Chawla JPS. Developing competency testing tools for the incoming neurology residents. www.frontiersin.org
- Kissela B. The use of standardized patients for mock oral board exams in neurology: a pilot study. *BMC Medical Education*2006, 6:22
- Schuh LA. Education Research: Bias and poor interrater reliability in evaluating the neurology clinical skills examination. Neurology® 2009;73:904 –908

References 3

- EFNS-ebrain: http://www.efns.org/eBrain.717.0.html
- United Council for Neurological Subspecialities: http://www.ucns.org/

Contents

- The European Union – One Neurologist?
- residency in Europe – the current situation
- Training abroad

The European Union (EU) is an economic and political union of 27 member states

EFNS (1998)

JNT – Junior neurologists and trainees

ENS (1999)

ENT - European Neurological Trainees

The European Association of Young Neurologists and Trainees (EAYNT)

INDEPENDENT

~~harmonisation~~

The European Union		United States
27	**Countries/States**	50
505 Mio.	**Inhabitants**	308 Mio.
16,106,306	**Gross domestic product** (Mio USD)	14,624,184
5.6/1000	**Infant death rate** (among 223 countries)	6.1/1000
78.8	**Life expectancy**	78.4

Source: The World Factbook, CIA

European residency training

European Journal of Neurology 2005, 12: 743–746

SPECIAL ARTICLE

Recommended core curriculum for a specialist training program in neurology

Consensus document of the EFNS/EBN: Final Draft Paris September 2004

C. Pontes (Chairman)
Serviço de Neurologia, Faculdade de Medicina/Hospital de S. João, Porto, Portugal

- 60 months min. training; 36 months min. Neurology training
- Training should include research
- Training in more than one institution
- Training abroad should be encouraged

European residency training

European Journal of Neurology 2007, 14: 241–247 doi:10.1111/j.1468-1331.2006.01663.x

SPECIAL ARTICLE/FORUM FOR EUROPEAN NEUROLOGISTS

One Europe, one neurologist?

W. Grisold[a], R. Galvin[b], V. Lisnic[c], J. Lopes Lima[d], E. Mueller[e], St. Oberndorfer[a], D. B. Vodusek[f] and UEMS-EBN and EFNS Education Committee

There is wide variation in the delivery of neurological services throughout Europe. This is reflected in manpower levels, the place of neurology related to other medical specialties and different mixes of hospital and private office practice.

European residency training

UEMS Chapter 6

European Training Charter for Medical Specialists, UEMS 2007

NEUROLOGY

Chapter 6, CHARTER on TRAINING of MEDICAL SPECIALISTS in the EU

REQUIREMENTS for the Speciality Neurology

to replace previous document (Copenhagen 2000)

1 Training and lifelong learning
2 Central monitoring authority for Neurology at EU level
3 General aspects of training
4 Requirements for training institution
5 Requirements for the post of chief of training
6 Requirements for trainees
7 CME/CPD

European residency training

Chapter 6 – some requirements

- Training min: 4 years Neurology, 6 years total training
- Unselected acute admissions
- Fair balanced in- and outpatients
- Training should include
  - Child Neurology, Neurorehabilitation, Intensive care neurology.
- Recommended: Neurophysiology, Internal medicine, Neurosurgery
- Recommended: hospital rotation, training logbook
- There should be access to internet, databases, literature

European residency training

Contents

European residency training

European Journal of Neurology 2010 doi:10.1111/j.1468-1331.2010.03219.x

EFNS FORUM

Neurology residency training in Europe – the current situation

W. Struhal[a,b,c], J. Sellner[a], V. Lisnic[b], L. Vécsei[b], E. Müller[d] and W. Grisold[c]

[a]European Association of Young Neurologists and Trainees (EAYNT); [b]Education Committee, EFNS; [c]European Union of Medical Specialists/European Board of Neurology (EBN); and [d]European Federation of Neurological Societies (EFNS)

- representing 505 million inhabitants

Country	n/100 000 inhabitants	National training programme	National training structured	Duration of training (years)	Training in neurology (months)	Structured teaching	Obligatory logbook	Rotation	Assessment	Board examination	Total working hours
Albania	2,9	*	*	4	33				*	*	60
Austria	9,6	*	*	6	48	*			*	*	48
Belgium	6,5			5	60	*	*		*	*	40
Bulgaria	11,7	*	*	4	29		*	*		*	30
Croatia	6,2	*	*	4	42	*	*	*	*		40
Czech Republic	6,3	*	*	5	51	*	*	*	*	*	43
Estonia	9,4	*	*	5	25	*	*	*	*	*	40
Finland	6,3			6	48		*			*	38
Georgia	17,4	*	*	4	44	*	*	*	*	*	80
Germany	5,5	*	*	5	36	*			*	*	40
Greece	10,9	*		5	36	*			*	*	39
Hungary	6,0	*	*	5	42	*		*	*	*	40
Iceland	6,5			5	48		*				40
Israel	4,7	*		5	42	*	*		*	*	45
Italy	5,9	*	*	5	30	*	*		*	*	38
Latvia	12,0	*	*	5	44		*	*	*	*	40
Lithuania	8,9	*	*	4	24	*	*	*	*	*	40
Luxembourg	4,6			4	48						
Moldova	7,2	*	*	3	24		*	*	*	*	
the Netherlands	4,7	*	*	6		*	*	*	*		48
Norway	7,7	*		5	42	*	*	*	*		38
Portugal	3,4	*	*	5	24				*	*	42
Romania	4,4	*	*	5	36	*		*	*	*	35
Serbia	4,3	*	*	5	48	*		*	*	*	35
Slovenia	4,2	*	*	6	48		*	*	*	*	40
Slovak Republic	12,5	*		5	46		*		*	*	40
Spain	4,4	*	*	4	36			*	*		56
Sweden	3,8			5	36						40
Switzerland	5,2	*	*	6	36	*	*		*	*	50
Turkey	2,0	*	*	5	60	*	*	*	*	*	45
UK	0,9	*	*	6	60	*	*	*	*		40

European residency training

Training outlines

- Duration 4,9 years
- Average working hours for residents 43 week (30 in Bulgaria to 80 in Georgia)
  - 33 hours patient work (20 in Italy and Bulgaria, 55 in Albany)
  - 7 hours theoretical training

European residency training

Manpower in Europe

- 6,6 neurologists available for 100.000 inhabitants (0,9 in UK to 17,4 in Georgia)
- in average 46% women (10% in Italy to 82% in Georgia)
- Average male retirement age 65 years (62 in Moldova, 70 in Georgia, Iceland), female retirement age 63 years (58 in Moldova, 70 in Iceland)

Training contents

- national postgraduate training program existed in 26 (of 31) countries
- Practical training
  - Stroke, extrapyramidal diseases, epilepsy and MS: all countries
  - Dementia: 29 countries
  - neuromuscular und spinal disease: 28 countries
  - Neuroinfection: 26 countries
  - neurotrauma and neurooncology: 19 countries
  - genetic disease: 18 countries
  - neurointensive care: 17 countries
  - Neurogeriatics: 14 countries
  - Neuroethics: 9 countries
  - neuropalliative care: 8 countries.

Skills

- Practical skills
  - lumbar puncture: 29 countries
  - evaluation of CT and MRI scans: 19
  - scales and scores: 14
  - EEG: 11
  - NCV and EMG: 10
  - CSF diagnostics and ultrasound investigations in 8
  - intrathecal treatment and genetic counselling: 7
  - neuropsychology: 6
  - autonomic nervous system investigations and speech trainings: 3
  - botulinum toxin therapy: 2 countries

- European standards exist – but not in reality
- some core competencies (stroke, extrapyramidal diseases, epilepsy and MS) – great variety on different training content, training framework, accessibility and assessment

Contents

- The European Union – One Neurologist?
- residency in Europe – the current situation
- Training abroad

European Journal of Neurology 2002, 9: 349-352

SPECIAL ARTICLE

Open Facilities for Training in European Neurology (OFTEN): a European Board of Neurology initiative

N. E. Gilhus[a], A. Federico[b], W. Grisold[c], L. Müller[d] and J. M. Lopes Lima[e]
[a]Department of Neurology, University of Bergen, Norway; [b]Institute of Neurological Sciences, University of Siena, Italy; [c]Department of Neurology, Kaiser-Franz Josef Hospital, Vienna, Austria; [d]EFNS, Vienna, Austria; and [e]Department of Neurology, Hospital Geral de Santo Antonio, Porto, Portugal

- The EBN has established to assist neurology training abroad.
- OFTEN provides information to help trainees to arrange their training, but does not provide any funding.
- Administrated by EAYNT

Outlook

- Changing needs of digital natives („Generation Y“)
- Online teaching resources widely used:
  - Googleing the diagnosis
  - E-learning
  - Emedicine, medscape, itunes u, podcasts, scholar.google…

Special Article

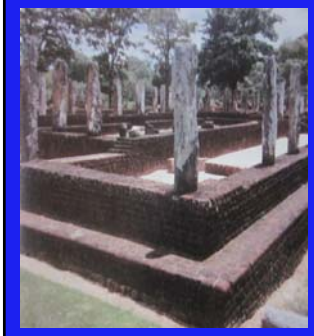
European Association of Young Neurologists and Trainees: Position Paper on Teaching Courses for Generation Y

Walter Struhal[a], Cristian Falup-Pecurariu[b], Laszlo K. Sztriha[a], Wolfgang Grisold[c], Johann Sellner[c,1]

Neurology Education in Sri Lanka

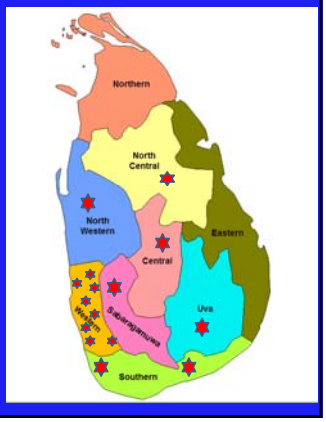
Dr.Tissa Wijeratne MD
Department of Neurology
Western Hospital & University of Melbourne
Australia
Dr. Darshana Sirisena MD
Department of Neurology
Anuradhapura Hospital
Sri Lanka

Sri Lanka 1017-1235 AD



Sri Lanka 1017-1235 AD

Population	20.5 million
Area	65 610 km^2
GDP	$49.68 Billions
Per capita income	$2435



Sri Lankan Health system

- Free health care to all citizens through public health system.
- Therefore free access to health care including medications.
- Private health care system exist but do not have a direct partnership with the public health system.

Public health system.

- 2 major aspects

1. Curative health care - through network of hospitals scattered throughout the island.
2. Preventive health care – very well organized through a network of community health institutions.

Health care delivery system in SL

- National level - 4
- Teaching Hospitals - 5
- Provincial General Hospitals -4
- District general Hospitals - 18
- Base Hospitals -66
- Peripheral units – 933
- Total Bed strength - 69501

Health & economic indices

	Life expectancy	IMR	Physicians/ 1000 population	Health care cost as % of GDP	% of government revenue spend on health	Per capita income ($)
AUSTRALIA	81.8	4.2	2.8	8.7	17.7	19213
CANADA	81.3	3.1	2.3	10.1	16.7	20789
JAPAN	82.3	2.6	2.1	8.1	16.8	23474
UK	80.1	4.8	2.5	8.4	15.8	34486
USA	78.1	6.7	2.4	16	18.5	47234
SL	75.3	11.17	0.3	3.4	4.5	2400

1. Access to medical facilities.
2. Availability of diagnostic facilities.
3. Availability of drugs and other supportive care.

Access to medical facilities

- No proper referral system as such mainly because no proper GP network.
- Referrals are through OPD in the government hospitals and from District and peripherals hospitals in the government health system.
- Private health system – easy accessibility.

Availability of diagnostic facilities.

Genetic tests.

- Not available in the government sector yet.
- One private hospital & in 2 universities mainly on research basis in Colombo.
- Overall services are not accessible to many.

Imaging (MRI)

- Not freely available
- Mainly centered in Colombo and couple of major cities.

Availability of drugs and other supportive care.(Cont.)

Genetic counseling

- hardly any (Only available in one university centre in Colombo)

Psycho-social support

- Through psychiatrists and their team
- Despite their heavy workload
- Currently no support from psychologists

Availability of drugs and other supportive care.(Cont.)

Other supportive care.

1. Social and family support.
2. Care-giver support.
3. Institutional care.

Neurology Training

- Five year medical degree in English language (based on British system)
- One year internship (six months internal medicine, six months surgery, six months pediatrics, six months Gynecology and Obstetrics)
- Post intern MO/SHO posts in the public system

Neurology Training

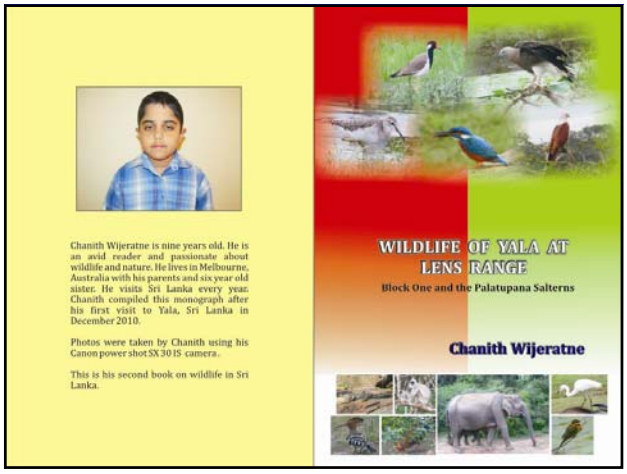
- PGIM
- MD part one (Similar to MRCP part one, added OSCE clinical component)
- Registrar in Internal Medicine for one and half year
- Subspecialty rotation for one and half years in all subspecialties in internal medicine
- MD part two exam

Neurology Training post MD

- Two years under the supervision of a board certified neurologist in Sri Lanka
- One year/Two years overseas training in a major neurology Centre in USA, UK, Australia, Singapore, New Zealand
- Board certification in Neurology in Sri Lanka in Neurology or Neurophysiology

Future

- Subspecialties
- Increase cadre positions
- Academic positions in Neurology
- Neurology educational opportunities for medical students
- Neurology educational opportunities for nursing and allied health students/staff


Chanith Wijeratne is nine years old. He is an avid reader and passionate about wildlife and nature. He lives in Melbourne, Australia with his parents and six year old sister. He visits Sri Lanka every year. Chanith compiled this monograph after his first visit to Yala, Sri Lanka in December 2010.
Photos were taken by Chanith using his Canon power shot SX 30 IS camera.
This is his second book on wildlife in Sri Lanka.
WILDLIFE OF YALA AT LENS RANGE
Block One and the Palatupana Salterns
Chanith Wijeratne

Neurologic education; developing countries perspective

Presenters:

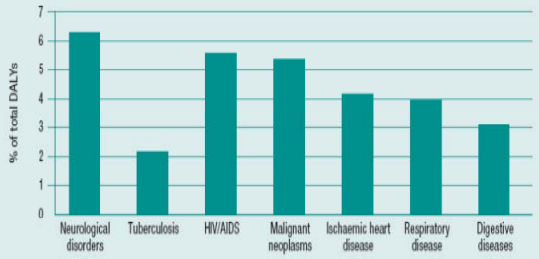
Mohammad Wasay MD, FRCP, FAAN
Aga Khan University, Karachi
Pakistan

MAN MOHAN MEHNDIRATTA, D.M, FRCP
Director Professor of Neurology G.B.Pant Hospital, New Delhi India

Burden of Neurological diseases

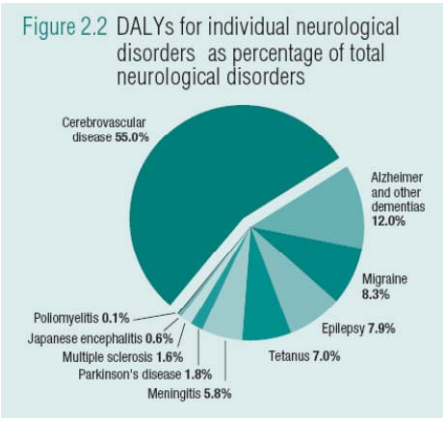
- Overall burden of Neurological Diseases in the world is around 6.5%.
- It ranges from 4-5% in lower income countries (Pakistan) as compared to 10-11% in high income countries.
- Over all death and disability related to neurological diseases is higher than HIV/AIDS, neoplasms, ischemic heart diseases and Tuberculosis.

Figure 2.1 Percentage of total DALYs for selected diseases[a] and neurological disorders[b]



[a] GBD cause categories
[b] Neuropsychiatric plus other categories

Figure 2.2 DALYs for individual neurological disorders as percentage of total neurological disorders



Burden of neurological diseases in developing countries:

- A population based study conducted in India surveyed 102,557 individuals in Banglore found 3,355 individuals with neurological disorders per 100000 population.
- The most frequent disorders were headache, febrile convulsions, Epilepsy, Stroke and mental retardation.
- Another study conducted in Saudi Arabia screened 23,227 Saudis. Overall crude prevalence of neurological disorders was 131/1000 population.

Neurologic education; Dimensions

- Undergraduate neurological education
- Post graduate neurological education
- Physicians education (CME)
- Public awareness and education
- Education of health policy makers and government officials (Advocacy)

Undergraduate neurological education

- Large number of medical colleges in these countries do not have a trained neurologists or neurology department (more than 60% medical colleges in Pakistan)
- Mostly done by internists
- Curriculum based on textbooks; limited and outdated
- Under Medicine; no component in examination

Undergraduate neurological education

- Every medical college must have a neurologist on board; responsible for undergraduate neurological education
- Neurology paper/ examination in medical college examinations
- Update neurology curriculum

Post graduate neurological education

- Few neurology training positions
- Many countries in Asia and Africa do not have a neurology training program
- Limited neurology training in Post graduate internal medicine and family medicine programs
- No degree or certification with neurology training

Post graduate neurological education

- Post graduate neurological education must focus on developing trainers in neurology (current focus is on practicing neurologist)
- Enhance local training opportunities. Target neurologist should be one per 100,000 in developing countries. (currently one neurologist per 1-2 million population)

Physicians education

- GPs, family physicians and internists take care of more than 90% neurological cases
- Limited CMEs related to neurological diseases
- CME is not required for license renewal in large number of these countries
- CMEs mostly organized by pharmaceutical industry or heavily influenced by industry
- Neurology related CMEs; targeting therapeutics and pharmacological management

Physicians education

- Important target area for neurological education; GPs, family physicians and internists
- Professional organizations; strong role in CME
- Disease related professional organizations
- Develop guidelines; customized for local requirements
- Mandatory CME

- GEMIND Guidelines in Epilepsy Management in India
- Indian Stroke Guidelines of Indian Stroke Association
- Guidelines in the Management of Neurological Disorders of Indian Academy of Neurology
- Similarly we can mention about Epilepsy Teaching Pogram for Family Physicians, Consultant Physicians and Neurologists.

Public awareness and education

- Public awareness low related to neurological diseases
- Role of media
- Awareness about vaccine preventable diseases; tetanus, rabies, polio etc
- Utilize world days; stroke day, epilepsy day, MS day etc
- Patients support groups, professional organizations team up with print and electronic media
- Social media- you tube, face book

Education of health policy makers and government officials (Advocacy)

- Importance of advocacy increasingly recognized by professional organizations- AAN, WFN
- Need for advocacy training- it is a skill
- Highest impact
- Target: Prioritize neurological diseases and training
- Organized advocacy by professional organizations

Conclusion:

- Burden of neurological diseases is high in developing countries
- Very few neurologist and neurology training programs
- Physicians and public awareness low
- Multi- dimensional approach to improve neurological education
- Educating health policy makers is extremely important