Medical Education

What education is needed to improve outcomes for people with mental and neurological disorders?
This time we can praise The Institute Magazine for selecting medical education as a topic of importance and for inviting four experts to specify what type of education is needed to improve the outcomes of mental and neurological disorders. The four contributors cover different parts of the theme: Professor Okasha, from the Institute of Psychiatry at the Ain Shams University in Cairo, speaks from the point of view of a psychiatrist working in a developing country; Professor Goodwin speaks not only as a psychiatrist but also as the President of the ECNP, the leading non-governmental organization dealing with psychopharmacotherapy in Europe; Pedro Montellano the Chairperson of Global Alliance of Mental Illness Advocacy Network present the views of an organization that promotes the interests of people with mental illnesses and protects their rights; and Professor Gauthier addresses the educational needs from the point of view of a neurologist.

The four articles succinctly present a number of issues concerning the education aimed to support the care for people with mental and neurological illnesses and improve the outcomes of these disorders: It is necessary to mention a few of the other areas that will impact our efforts in this area in order to put the four contributions’ recommendations into context.

The first of these areas concerns the need to improve the knowledge, attitudes, and consequent action of those who are responsible for mental health care in the government and its various agencies. Employees in the Ministry of Health and its offices are not the only ones to deal with this matter. More important are the ones who are responsible for the budget reserved for the care of people with mental and neurological disorders, the ones responsible for the work of the ministries of labor, social service, education and the many others who can contribute to the improvement of the outcomes of illnesses affecting the brain.

The education of the members of parliament or other governing bodies will play the key role in decisions about legislation, the protection of human rights, the support for those disabled by mental and neurological illnesses, and other elements of the environment in which people with mental and neurological illnesses have to live.

Another target of education about illnesses affecting the brain, which needs emphasis in the education of health personnel (as well as of the general public), is the methods to fight the stigmatization of the mentally, and to a lesser degree of the neurologically, ill. A variety of studies showed that many health care workers at all levels (and in all countries, both developing and developed) have negative attitudes towards people with mental and neuro-

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logical illnesses and that they have a discriminatory behavior towards them. Providing knowledge about mental illnesses does not necessarily decrease the stigma nor does it eliminate the negative attitudes and discrimination. In some instances, the provision of additional knowledge about mental and neurological illnesses has in fact contributed to the strength of stigma.

It is the skillful combination of provision of facts concerning the nature of mental illnesses and action against stigmatization – for example by facilitating social contacts with people who have experienced mental illness – that will have positive results for those who experience mental and neurological illnesses.

A third issue that needs attention concerns the selection of teachers for the various players in the field who need to be educated. There is fairly good evidence, for example, that general practitioners and family doctors prefer to be educated by members of their specialty rather than by psychiatrists or neurologists. The psychiatrist or neurologist is welcome as a resource person in the in-service training about the management of mental illness, but the experienced and knowledgeable family doctor is usually preferred as the teacher and the source of advice about the management of mental illness in conditions of general practice. Members of the family of mentally ill people often have a lot of knowledge and experience about ways of managing mental illness at home: It is a pity that they are so seldom used as teachers of medical students when the management of mental and neurological illness is taught. In-service education of the practicing psychiatrist is often a matter of neglect and is frequently limited to the provision of data by representatives of pharmaceutical companies who visit them in their offices. Patients themselves are only rarely invited to teach about living with mental illness although they could provide valuable education to all members of the medical profession.

The revolutionary advances of our knowledge about mental and neurological illnesses and about their treatment provide a solid basis for an improvement of care to people who suffer from them. A key element of the effort to ensure the application of this knowledge in practice is education – the provision of knowledge, skills, and attitudes relevant to the care of mental and neurological illnesses. In order to achieve its full effect, education must reach all those who can improve health care and improve the outcome of these illnesses; it must also proceed hand in hand with a continuing engagement in action to reduce the stigma of mental and neurological illnesses. The Institute Magazine has selected a topic of great importance for this issue: It is to be hoped that it will continue to focus on the various aspects of education and related topics in its future issues.
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Psychiatry Perspective

Introduction: Why is Better Education on Mental and Neurological Disorders Needed?

According to the Global Burden of Disease Study (Whiteford et al., 2013), mental and substance use disorders were the leading cause of all non-fatal burdens in 2010 as measured by years lived with disability (YLDs). Mental and substance use disorders, of which depressive disorders were the biggest contributor, accounted for almost a quarter of all YLDs – considerably more than cancer, and cardiovascular and circulatory diseases.

In terms of disability-adjusted life years (DALYs), calculated as the sum of YLDs and years of life lost due to premature mortality, mental and substance use disorders were the fifth leading cause of burden; again, depressive disorders were the major contributor. In the year 2030, depression will be the number one global burden of disease followed by ischaemic heart disease (WHO, 2008). Clearly, these disorders pose a considerable challenge for health systems worldwide, highlighting the need for proper education in this area.

As well as being a direct burden, psychiatric disorders can have a profound effect on physical disorders and vice versa. For example, for a patient with comorbid depression and diabetes, successful treatment of the depression is also likely to improve the prognosis of their diabetes. Furthermore, since depression is a risk factor for many other disorders, such as ischaemic heart disease, Alzheimer’s disease, and osteoporosis (especially in women), the successful treatment of depression may prevent the occurrence of other physical disorders. As part of a programme aiming to raise the awareness of the prevalence and prognostic implications of depression in persons with physical diseases, the World Psychiatric Association (WPA) has published three books: Depression and Diabetes (2010), Depression and Heart Disease (2010), and Depression and Cancer (2010). These books aim to demonstrate the health impact and the economic impact of correctly diagnosing and treating depression in clinical practice. Indeed it is valuable to educate psychiatrists in the economics of health, so that they can inform their governments of and advocate for the importance of mental health and psychiatric care in order to achieve parity between mental and physical health.

Which Areas Need More Attention?

In developing countries, it is important that primary care physicians are alert for unexplained somatic symptoms. In Egypt, more than half of the patients with psychiatric disorders will present with somatic symptoms – even those patients with schizophrenia or other psychotic disorders. In terms of education, it is important to emphasise the somatic presentations of psychiatric disorders, a factor that should also be taken into account when planning treatment and devising classification systems. A further example of cultural factors influencing diagnosis can be found in the area of eating disorders. In a recent study which examined the prevalence of eating disorders in 371 secondary school girls (Okasha, 2009), the investigators identified no cases of anorexia nervosa or of bulimia nervosa, but only atypical cases of anorexia and atypical cases of bulimia, highlighting the need for diagnosis criteria that can identify symptomatology across all cultures.

Another topic that should be taught to psychiatrists is the brain circuitry related to psychiatric disorders. The Human Connectome...
Project is currently mapping brain circuitry in a large number of healthy adults using non-invasive neuroimaging. It aims to produce comprehensive information about brain connectivity, its relationship to behaviour, and the contributions of genetic and environmental factors to individual differences in brain circuitry and behaviour. It is a feasible next step to start to identify the brain circuits for delusions, hallucinations, and other symptoms of mental disorders, which may have an impact on creating a new classification system in psychiatry based on aetiology rather than symptoms alone.

However, we must be careful not to 'medicalise normality', in other words to treat something as a medical problem without justification. It is possible that social phobia, post-traumatic stress disorder, and premenstrual dysphoric disorder, for example, are normal phenomena that have become medicalised. There is also a risk that children will be over-diagnosed with psychiatric disorders following the changes to childhood psychiatry in the new Diagnostic and Statistical Manual of Mental Disorders (DSM-5™). This is a sensitive topic, and the problem of medicalising normality will have to be presented clearly and carefully to the media to prevent them from reacting negatively.

Who in Particular Need This Education

Everyone in psychiatry needs further education, including undergraduates, junior psychiatrists, and senior psychiatrists. Undergraduate psychiatric training is crucial, because without it there will be no psychiatrists to recruit. The most senior professors in the department should teach psychiatry as they are the people who will convince the new generation to become psychiatrists. The focus of teaching should be the medical model, rather than the psychoanalytical approach, because psychiatrists want to be doctors, not social workers.
Residency Training Programmes are Also Valuable, but Curricula Vary Widely

Some residency training programmes do not include the essentials of psychiatry – they omit electroconvulsive therapy or psychotherapy, for example. There is also an issue in that current programmes may be purely biological, purely social, or purely psychological. There is a need for carefully planned courses for junior psychiatrists and residents to bring back the bio-psycho-social model in which education focuses on psychopathology, rather than on how to collect criteria to fulfil a diagnosis.

How Should the Education be Provided and by Whom?

In psychiatry, the most important skills to learn are clinical skills and the ability to communicate information. Psychiatrists are in effect an ‘active placebo’.

A doctor who is able to talk to a patient about their prognosis and the potential side effects of a medicine will have much better compliance than a doctor who does not communicate in this way. There is clinical evidence from placebo, ‘active placebo’, and nocebo literature that this can affect outcome and response to some medications (Eknoyan et al., 2013). This finding can also be applied to randomised clinical trials and to the person giving the medication in a double-blind study – is it the professor with a ‘halo’ effect, or is it a junior doctor? This human interaction may have an influence on the results of some drug trials. On a related note, it should be clinicians who provide the education rather than researchers. This is a real issue in countries where clinicians, academicians, and researchers are separate people, but it is less of an issue in Egypt. Here we do not have the luxury to divide up the discipline. Whatever the setting, psychiatry should be taught by people who actually see the patients.

Case vignettes, videos, and live cases in the presence of senior clinicians are excellent for educational purposes. Most important, however, is a residency in a mental hospital.

A psychiatrist is never a good psychiatrist, until he or she has been woken at four in the morning with a patient who is delirious, or who is having a first manic episode. This type of experience cannot be learnt from a book.

In Egyptian emergency rooms and in many developing countries, we still see and treat conversion monoplegia, conversion aphonia, conversion hemiplegia, and catatonia as well as acute and transient psychotic disorders (Okasha, 1993; Okasha, 2004; Okasha & Okasha, 2013). Psychiatrists need to see these conditions to be able to learn to deal with them.

What Information Should be Provided?

The bio-psycho-social model – in which health issues are considered to be a complex interplay of biological, psychological, and social factors – remains important. However, while our biological understanding of mental disorders has progressed tremendously, this has not translated into clinical practice. Research should be for the benefit of the patient, not for the benefit of industry and this is an area that needs to be addressed.

Conclusion

The purpose of psychiatry is to improve patient outcomes. Thus, psychiatrists should be taught clinical skills and psychopathology in order to improve their communication skills with patients and families. Regrettably, the emphasis after the introduction of the International Classification of Diseases (ICD) and DSM systems is only on the number and duration of criteria, rather than on eliciting the psychopathology of the patient. Furthermore, it is important to be aware that in different cultures patients present with different symptoms and that psychiatric education should account for these discrepancies.

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Neuropsychopharmacology Perspective

Introduction: the European College of Neuropsychopharmacology (ECNP)

The ECNP is a pan-European scientific association, founded in 1987, to encourage innovative research across the neurosciences and to translate new knowledge on fundamental disease mechanisms into new medicines and clinical applications.

Acting as an interdisciplinary forum, the ECNP brings together neuroscientists and representatives from clinical practice and industry.

The knowledge of ECNP members is shared via the annual ECNP Congress, as well as via regional meetings and the ECNP journal, European Neuropsychopharmacology (ENP).

This is an exciting time for the ECNP as the association began in 2008. The first is to create European research networks with the purpose of bringing together scientists to apply for European-level funding. The second initiative is the development of ECNP schools. The ECNP consulted with national societies to ask if the young psychiatrists in their localities received good training in psychopharmacology and if not, what could be done to improve it? Overall, it was found that current training in psychotherapy is extensive, but that the same cannot be said for psychopharmacology. The ECNP concluded that there was a need for schools to provide training in clinical neuropsychopharmacology for an elite group of junior practitioners. This led to the establishment of ECNP schools: Yearly or two-yearly events for young psychiatrists who treat adult patients, paediatric patients, or elderly patients.

Why is Better Education on Mental Disorders Needed?

In the UK, the status of psychiatry as a medical speciality began to change during the social revolution of the 1960s. Pragmatic clinicians had been the first to question whether institutions to house the mentally ill were necessary. The existing thrust towards community-based care was to some extent, hi-jacked by politically and socially extreme campaigners. As an example, R. D. Laing, a Scottish psychiatrist, helped to politicise and popularise the movement with his beliefs that in an insane political system, it is the psychotic who is in touch with the truth. These social factors, together with the UK’s highly socialised medical care system, translated into national movements, including community care (de-institutionalisation), anti-psychiatry, and anti-industry. The first patient organisations tended not to embrace input from psychiatrists.

De-institutionalisation in the UK occurred early in the 1970s and 1980s. There was a great emphasis on discharging patients from long-stay institutions; indeed, the very large institutions were closed down to be replaced by a mixture of inpatient units in general hospitals and smaller standalone units.

The idea of community care was promoted, the role of ‘community psychiatric nurse’ was developed, and there was widespread use of...
depot medications. At the time, these changes were exciting and ultimately resulted in a better ward environment. However, in the late 1990s, the leftish government of Tony Blair declared that all previous policies were a failure, and – due to close ties with a politicised patient movement – invented ‘clinical governance’: In practice this meant a shift of clinical responsibility from doctors to managers and the rise of a new class of nurse trained middle managers. Not only was this more expensive, but by excluding doctors from the planning process it undermined the position and role of psychiatrists (Goodwin & Geddes, 2007).

Politisation of the leadership of some important patient groups also fuelled a strong anti-psychiatry movement, which was based upon the belief that psychiatric approaches were more damaging to patients than they were helpful. This was despite the increasing recognition by psychiatrists that families were crucial for the effective delivery of community treatment and the corresponding desire of patients and families to work with psychiatrists to improve services. Local patient groups often seemed to be ignored by their national leadership who ran campaigns with no mainstream medical input and so became detached from any kind of consensual medical view. These campaigns had a very clear message – to transfer all resources to the community. There was also opposition to the legal framework for detention, which, as the responsibility of doctors, had originally been seen as a way to take mental illness out of the hands of lawyers and judges, but now resulted in doctors becoming known as the ‘bad guys’ – the imprisoners of mental patients.

Within the new de-medicalised services, there were active campaigns to prioritise non-drug treatments, such as psychotherapy, which led to the rise of psychologists, nurses (who took most of the management jobs), occupational therapists, and social workers at the expense of psychiatrists. Due to this ‘new way of working’ (Vize et al., 2008), the UK has ended up with services designed by nurses for nurses. For example, at present there are plans being widely implemented to create separate teams, often nurse led, for the assessment and for the treatment of patients, despite the fact that ordinary patients want consistent care from one qualified individual.

Much of all this co-existed with the revolution in psychopharmacology which meant that the emphasis of mainstream psychiatry changed decisively from being relatively ‘brainless’ – focused on the mind and psychoanalysis – to being relatively ‘mindless’ – focused on brain biology and pharmacotherapy (this unhelpful division of the mind and brain is one that persists to this day among the media and the general public). The interest of new medicines has meant that psychiatry in the UK, as elsewhere, has been damaged by the anti-industry movement – a major public misunderstanding of the role of drugs, manifest as the ‘bad pharma’ stereotype in which drug companies are believed to mislead doctors and to harm patients. Medicines are, of course, marketed to prescribers, not to patients, and in the past this has been associated with excesses in the promotion of new antidepressants and antipsychotics. In addition, some companies have had a loose boundary between their medical departments and their marketing departments. All of this has resulted in very bad press for pharmaceutical companies and doctors.
One of the main consequences of de-medicalisation in the UK is a very low rate of recruitment of psychiatrists (Fazel & Ebmeier, 2009). At its worst, doctors trained in the UK filled only one in ten positions and many training positions were unfilled. An obvious consequence of de-medicalisation has been that psychiatrists became de-skilled – a result of being in office, but not in charge. Furthermore, levels of care were 'dumbed down' with – at times – complete ignorance of how to use medicines. In the UK, for all of these reasons, there is a profound need for continuing medical education. In addition, the status of psychiatry is in question – is it a part of medicine, or is it closer to social work? Finally, there is a need to define the role of the psychiatrist – whether as a medical leader or a bureaucrat – and to make a decision regarding the place of drug treatments and biomedicine in clinical practice.

How Should the Education be Provided and by Whom?

The objectives for ECNP schools, established after consultation with national representatives of many European countries, are to provide up-to-date overviews of the pharmacology of the major classes of psychotropic medicines, to relate knowledge to practice in clinical workshops, and to provide a forum for thinking about how the young psychiatrists, who attend, can provide high-quality education to their colleagues at home. The ECNP schools are intentionally elitist, because there is a need for an elite group in clinical neuropsychopharmacology. The national societies of participating countries are given two places to allocate. We encourage these places to be awarded as a prize to the best trainees or for the best posters at a national meeting.

The objectives for participants at the schools are to aspire to be the best young psychiatrists, to initiate neuropsychopharmacology instruction for students or trainees at home, to use the school’s methods and materials in their teaching, and to use the school’s methods and materials in their clinical practice.

The ECNP schools have a similar course structure to those of The Lundbeck Institute, comprising presentations and workshops over a period of 5 days. The topics covered include anxiolytics, antipsychotics, mood stabilisers, and antidepressants – with an emphasis on mechanisms and the evidence-base for treatment planning.

Feedback suggests that participant satisfaction is very high, and that attendees particularly value the opportunity to meet international experts in their field in relatively small groups. Such contact with experts is inspiring to young psychiatrists and encourages them to be ambitious themselves. The experts enjoy it too.

Conclusion

Current neuropsychopharmacology education in Europe is inadequate. There is much less emphasis in training on formal instruction and experience as occurs for psychotherapy. This challenge arises in the context of increasing de-medicalisation of psychiatric services. In the most extreme case (England and Wales), this has occurred in part due to political movements, which resulted in clinical governance switching from doctors to managers and in community care and non-pharmacological treatments becoming prioritised over in-patient/hospital and pharmacology.

If experts teach neuropsychopharmacology to small groups of young psychiatrists, they can sow the seeds of enthusiasm to educate their colleagues in their own countries. High quality practice in the humane use of drugs in psychiatry must be the future for psychiatrists everywhere.

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Patient and Family Perspective

Introduction: The Global Alliance of Mental Illness Advocacy Networks (GAMIAN) – Europe

GAMIAN-Europe is a patient-driven, pan-European organisation, which represents the interests of persons affected by mental illness and advocates for their rights. Its main objectives are to advocate; to provide information and education; to combat stigma, discrimination, and exclusion; to promote patients’ rights; to promote co-operation, partnerships and capacity building; to promote self-help and community care; and to conduct surveys, and research projects. Representatives of GAMIAN-Europe speak on behalf of patients with mental disorders at meetings, congresses, and working groups and run an interest group at the European Parliament.

GAMIAN-Europe holds an annual convention, as well as regional seminars and workshops with the purpose of developing activities to combat the stigma, discrimination, and exclusion faced by people with mental disorders. For example, a recent project involved the preparation of a set of initiatives for ‘Attitude Ambassadors’ as part of a large anti-stigma campaign. GAMIAN-Europe also develops community capacity-building programmes, and co-operates with European nongovernmental organisations, the European Commission, the European Parliament, the World Health Organization (WHO), and the World Federation for Mental Health. In terms of research, GAMIAN-Europe has three ongoing surveys: Two eHealth projects and a project called ‘MooDFOOD’, which assesses the role of nutrition in the prevention of depression.

Why is Better Education on Mental and Neurological Disorders Needed?

In terms of risk assessment and decision making, patients tend not to have an active part in the treatment of their mental disorders and thus there is an important role for patient education. Educating a patient about their mental disorder empowers them to successfully manage the disorder and its impact on their quality of life. By allowing a patient to make an informed decision, their treatment is more likely to be successful, they are more likely to adhere to the treatment and they are likely to have fewer relapses and hospital admissions. Comorbidities are an important issue in mental health, but by making a patient aware of this, and encouraging them to adopt a healthy lifestyle, the issue can be minimised. Overall, patient education can lead to a more efficient, cost-effective, and sustainable healthcare system. In addition, patients who are knowledgeable about their disease may be willing to participate in research projects that help to develop new treatments.

Patient education can also reduce stigma and treatment inequalities. The burden of stigma – towards oneself and from others – tends to be reduced as a patient becomes more knowledgeable about their disease and starts to see it in a different way. Inequalities regarding access to treatment can be decreased by making a patient aware of all the available treatment options.

In a survey conducted by GAMIAN-Europe (Gauci et al., 2012a), attitudes towards treatment were found to vary according to whether or not a patient was a member of a patients’ association. Members of patients’ associations tended to have more positive attitudes towards treatment in terms of adherence to psycho-education, self-help, psychotherapy,
and medication; they were more likely to make well-informed treatment decisions, to attend a self-help group, and to receive psychotherapy, and were less likely to receive medication as their only treatment (Figure 1). Importantly, members of patients’ associations were more likely to believe that their disease could be treated – if not cured, then at least controlled, allowing them to lead a normal life.

Patients’ families should also be provided with information on mental illnesses and their treatments, as well as details of how the mental health system works. Indeed, providing high-quality information to the families and carers of patients is key to the maintenance of an efficient family environment (Jones, EUFAMI). If family members are educated, they may be able to recognise early signs and symptoms of a mental disorder and thereby help a patient to receive earlier treatment. Furthermore, family members are themselves subject to distress related to the patient’s mental disorder so it is logical that they too should receive education, support, and assistance.

The general public are another important target for education, in order to increase awareness of mental disorders, and thereby facilitate their early identification by family members. General educational initiatives can support the early recognition of the symptoms of relapse and help people to understand what can happen in the event of a relapse. In addition, there is good evidence that educational campaigns aimed at the general public can shorten the duration that an illness goes untreated.

At present, many healthcare professionals do not discuss the complexities of a patient’s condition with the patient. However, if patient education is improved, then it is also important to provide better education to the healthcare professionals so that they can cope with informed patients. In addition, a mastery of skills, knowledge, and attitudes will enable healthcare professionals to be patient-focused rather than disease- or diagnosis-focused. It is important to remember that there is a person behind the diagnosis, and that symptoms can only be understood by having a close relationship with the patient. Equally, comorbidities are not always addressed by mental health professionals and this is an oversight. Ultimately, the goal of educating healthcare professionals is a holistic approach to treatment in which all members of the treatment team work together and communicate in order to provide maximum benefit to the patients.

**Who in Particular Needs This Education?**

Everyone associated with mental health issues – including healthcare professionals, patients, and their families – would benefit from additional education, albeit with differing content according to their role and relationship to the health disorders. No disease is more important than any other, but different diseases have different problems. The key issues for depression are its burden for patients, its high prevalence, and its large economic impact.

For schizophrenia, aside from the obvious medical needs, stigma is a serious problem.

**Which Disorders Need More Attention?**

From the patient and family perspective, education is required equally for all mental health disorders. No disease is more important than any other, but different diseases have different problems. The key issues for depression are its burden for patients, its high prevalence, and its large economic impact.
patient. The employers of a person with a mental disorder would also benefit from mental health education to answer questions they have, such as 'what is the point of treatment if the patient cannot work?', and 'is the patient going to relapse when they are back at work?'. Finally, the general public must be educated through campaigns to raise awareness and to prevent stigma.

How Should the Education be Provided and by Whom?

Face-to-face discussions are extremely valuable to help patients and families to cope with and understand their illness. Group sessions are also useful, whether in the form of self-help groups, psycho-educational groups, or care teams for family members and relatives who are directly affected by mental illness. Regarding educational materials, the market for web- and mobile-based learning is increasing, and there are already online applications or ‘apps’ to help manage depression. Publications continue to be valuable educational tools – GAMIAN-Europe has published a companion guide to bipolar disorder and another on schizophrenia is in preparation.

Ideally, the general public should receive mental health education from a very young age. The media have an important part to play in this, although they are reluctant as programmes on mental health tend not to attract large audiences. In addition, there are important educational roles for schools and universities as well as patient and family organisations, professionals and professional organisations, and national and European authorities and regulators.

What Information Should be Provided?

The internet is filled with information on mental health, but no one has vetted it for quality and high-quality information is key. Educational materials must also be friendly, and suitable for audiences of varying levels of health literacy. For patients, the information must help them to understand more about their disorder, enable better self-management, help them make informed decisions, and help them to act independently based on their knowledge. For families, appropriate support must be provided to improve their own emotional well-being, and to maximise the chances of recovery for the patient. As an example of information suitable for families, the ‘Prospect’ peer-to-peer family training programme, developed by the European Federation of Associations of Families of People with Mental Illness (EUFAMI), has been deployed in fourteen European countries with the aim of empowering carers and making a real difference to the lives of their ill relatives.

Conclusion

Better education empowers patients to get the most out of their available health care. This provides a range of benefits from improved treatment response (and therefore reduced healthcare costs) to reduced self-stigma. Education is also required for families and employers to improve their understanding of the patient; for the general public to raise awareness and combat stigma and for healthcare professionals to encourage patient-focused care.

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Introduction: General Trends in Behavioural Neurology

Behavioural neurology is a subspecialty of neurology committed to a better understanding of the links between neuroscience and behaviour and to the care of individuals with neurologically-based behavioural disturbances. The field, which is recognised by the American Neurological Association (ANA), is currently attracting increased interest, because of the development of various, new diagnostic procedures. Alzheimer’s disease (AD) will be used as an example due to the availability of many recent publications.

Biomarkers reflecting underlying neuropathology can be identified using brain imaging techniques, such as positron emission tomography (PET) and magnetic resonance imaging (MRI) as well as by analysis of cerebrospinal fluid (CSF). A revision of the 2007 research criteria for diagnosing AD before dementia has recently been published (Dubois et al., 2014), in which biomarkers are integrated into the diagnostic process, and clinical phenotypes are better defined across all stages of the disease.

Increased interest in the field of behavioural neurology can also be attributed to the wide availability of symptomatic drugs. The treatment of Parkinson’s disease (PD) with levodopa since the 1960s has improved the quality (and duration) of life of persons with PD. Although they do not have quite the same effect size, AD drugs, such as cholinesterase inhibitors (ChEIs) and memantine, are useful, relatively safe and widely used (Corbett et al., 2012). Many new drugs are currently being investigated, including compounds that target the prevention of amyloid or tau aggregation (Wischik et al., 2014). In addition, there are randomised controlled trials for conditions such as fronto-temporal dementia (FTD), and it is hoped that genotypes will be predictors of response to treatment in AD and FTD.

Biomarkers, Natural History, and Current Prescription Drugs for AD

There are numerous biomarkers for AD. In this regard, the field of dementia is much more fortunate than the fields of, say, schizophrenia and depression. Biomarkers for AD can be used to measure the accumulation of the protein beta-amyloid (Aβ) in the brain and to provide evidence of neuronal injury. Examples of Aβ biomarkers include a reduction in CSF Aβ1–42, and increased amyloid tracer retention on PET imaging (Laforce & Rabinovici, 2011).

Examples of tau biomarkers include elevated CSF tau (not specific to AD) (van Harten et al., 2011), and increased uptake of tracer agents in PET imaging (Okamura et al., 2014). Indeed, so many biomarkers have been identified for AD (Burhan et al., 2013), that priority has to be given and advice provided to local governments regarding which techniques should be reimbursed depending on the specific needs of the patient.

In terms of treatment, the course of AD can be divided into clinical stages ranging from normal ‘at risk’ to severe dementia (Figure 1). The first symptoms appear at the mild cognitive impairment (MCI) stage; there is no standard pharmacotherapy to treat MCI, but antidepressants may be required as the patient starts to realise their cognitive decline.

ChEIs are the standard pharmacotherapy as the disease progresses to dementia with memantine added at a later stage to help with mild agitation and dysphasia. At the severe
Dementia stage, antipsychotics have historically been used to treat certain behavioural symptoms, such as aggression, hallucinations, and false beliefs, although these drugs increase the risk of stroke and death. Ultimately, the patient will require palliative care. The drugs listed in Figure 1 are all generic and therefore relatively cheap. This pharmacologic treatment approach has become standard practice worldwide for dementia caused by AD.

However, in the management of AD there is still room for improvement. At present, it is unclear if earlier and more accurate diagnosis improves outcomes for people with mental and neurological disorders. The topic of earlier diagnosis is controversial – although it theoretically provides an opportunity to test the efficacy and safety of disease-modifying treatments, many people do not want to know if they will develop AD in the future.

Furthermore, in the management of AD, non-pharmacological cognitive training is underused, despite evidence to show that cognitive training for memory is effective in patients with MCI (Belleville et al., 2011). Similarly, sustained support for caregivers of patients in the mild-to-moderate stage of AD delays the time to nursing home placement of the patient (Mittelman et al., 2006).

Why is Better Education on Mental Disorders Needed?

There is a low exposure to neurological conditions with behavioural symptoms in medical schools and this needs to be addressed. In addition, primary care physicians (PCPs) and general neurologists typically have little interest in such disorders due to the large burden of responsibility for care that goes well beyond writing a simple prescription for pharmacotherapy. Neurologists, in comparison to for example geriatricians, are generally reluctant to handle multiple diagnoses in the same patient. Furthermore, there is a need for bridges between mental disorders. People with alcohol abuse, post-traumatic head injuries, bipolar or attention-deficit disorders are rarely seen in a memory clinic.

How Should the Education be Provided and by Whom?

In the US, several institutions have developed their own behavioural neurology educational programmes, which generally last for 1–2 years. Shorter courses, such as the 3-day courses offered by the Lundbeck Institute, are useful, but longer courses with continuity are necessary to obtain a better understanding of dementia.

Case studies are valuable at all levels of medical education: There is nothing like a good case to get the interest of healthcare professionals. Web-based education is the most useful approach in order to reach a large audience. In terms of content, the key topic in neurology is strategies for diagnosis and treatment based on age and disease stage. Regarding age, a young person with dementia is very different to an older person with the same symptoms (Masellis et al., 2013). As we move to earlier diagnosis and treatment of conditions such as AD, we will move towards ‘secondary prevention’ as dementia will become a later stage of disease (Gauthier et al., 2012).

Finally, it is important to transfer knowledge to the public at large. The public are interested in this field and there is a great opportunity to raise their awareness (Wikler et al., 2013).

Conclusion

This is a golden age for behavioural neurology with numerous advances in terms of earlier and more accurate diagnosis. However, the low exposure to neurological conditions in medical schools and the low interest in these conditions among practicing PCPs are areas, which need to be addressed via medical education with programmes such as those organised by the Lundbeck Institute. Harmonisation of the educational content between the different behavioural neurology programmes could be attempted through international professional associations.
References


