

Neuropsychiatry for Past, Today and Future

—For the launch of International Journal of Psychiatry and Neurology

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Neuropsychiatry, which has been persecuting the global, is the branch of medicine dealing with mental disorders attributable to diseases of the nervous system. “Chinese Mental Health Plan (2002-2010)” reported that there were about 450 million people suffering from mental disorders in the world which bore 11% burden of the global medical cost in 2002. About 20% people had mental disorder problems in USA depending on 2003 report of the United States President's New Freedom Commission on Mental Health. In 2009 China Disease Prevention and Control Health Center published the data of over 100 million people with neuropsychiatric diseases in China. Neuropsychiatry including the fields of psychiatry and neurology, has become a frontier of human scientific research, and a lot of countries have been paying close attentions to brain function study so as to understand the psychological activities, specially in neuropsychiatric processes.

Response to the fast development of neuropsychiatric science, we launched an international Chinese journal—International Journal of Psychiatry and Neurology, which was focusing on neuropsychiatric achievements and establishing an exchange platform for neurologists, psychiatrists, clinicians and researchers to share their idea about basic and clinic study in the field of neuropsychiatry.

1. Past of Neuropsychiatry

The symptom, diagnosis and treatment of neuropsychiatric disorders have been written in ancient medical books. The mental disorders (心疾) and brain diseases (首疾) were recorded in Chinese oracle 3600 years ago. A famous medical scientist and father of neuropsychiatry in ancient Greece, Hippocrates of Cos II (460~377 BC) proposed that mental activities were caused by humoral pathology depending on his theory that the brain controlled the thinking. In 300~200 BC, “Inner Canon of the Yellow Emperor - The Miraculous Pivot - Crazy Section” 《黄帝内经——灵枢·癫狂篇》 was the first book to discuss the relationship between the brain and mental activities. A France doctor Phillipe Pinel (1754-1826) was the first director of “Crazy Hospital” in the world. Dr. Rush Benjamin, father of neuropsychiatry in American, suggested that the programs of psychiatric and biological medicine should be opened for medical students 200 years ago. In 1845 Dr. Wilhelm Griesinger, a German scientist, proved first time that neuropsychiatric disorder was a kind of brain disease in his article. In 1902 Albany General Hospital in USA established the first department of neuropsychiatry.

2. Today of Neuropsychiatry

Following the scientific and technological development, especially the great achievements in neuroscience and mo-

lecular biology, we can use multidisciplinary skills integrating the basic and clinic to study the neuropsychiatric diseases at the level of molecular, cell and body. Neurological diseases cause mental disorders, as while as mental diseases change the brain function usually. It has promoted for the neuropsychiatric disease study to use the basic neuroscientific skills including neuroanatomy, neurophysiology, neurobiochemistry, neuroimmunology, neuropharmacology and so on, to find the susceptibility gene, clear the neuroanatomic location, understand the neurological control process and analyze the advanced brain function. On the other hand, it has verified the basic research results of neuropsychiatry by the clinical study data, genetic pedigree brain bank and non trauma resonance imaging skills.

It has been explained the neuropsychiatric origins in the fields of gene, brain function and psychopharmacology. The interactions between neurocells and special chemical substances in neurocells make us deeply recognize the brain function at the level of the membrane, receptor, transmitter, nucleus acid and so on, and understand the process of neuropsychiatric diseases.

Molecular genetics causes the research activities in neuropsychiatric diseases based on their high heritability. It makes a great success to find the new susceptibility gene by the genome wide association studies (GWAS) and systemic biological method.

It searches the biological diagnosis markers of neuropsychiatric diseases by the methods of brain morphology and function. For example, we can comprehend the dopamine way change through the tracer ^{18}F -FDOPA showing the pre-synaptic dopamine receptors after positron-emission tomography (PET)/Computer tomography (CT), and we can also acquire more biological information by combining neurological cognitive surveys.

It makes a great progress in research and development of neuropsychiatric drugs since chlorpromazine was found in 1952. Depending on the forecast of the World Health Organization (WHO) in 2002, it will reach to 14% for neuropsychiatric drug in the whole global medical market in 2020. Unfortunately, it only spent 6 years achieving this forecast in 2008, which it sold 104.8 billion US dollar in the global neuropsychiatric drug market. It showed very active in research and development of neuropsychiatric drugs past 10 years, in which many new neuropsychiatric drugs were approved into clinic trial research and some of them were launched.

3. Future of Neuropsychiatry

After the Clinical Antipsychotic Trials in Intervention Effectiveness (CATIE) project supported by the National Institute of Mental Health (NIMH) of USA, European Union (EU) spent huge funds to study the first episode of schizophrenia. We usually found many “Big Projects” (huge funds), which related with multicenter and multidisciplinary, in the fields of neuroscience and psychiatry. In 2010 the National Institute of Health (NIH) of USA began the project of human connection group plan to understand the brain interconnection, which included 9 institutes from USA, Italy, German and UK. It costs 40 million US dollars and uses the methods of nuclear magnetic resonance, task stimulation, magnetoencephalography and structure analysis. One of projects should study 300 twins and 1200 health volunteers. “The mental health act of the People's Republic of China (Draft)” was approved by the State Council Standing Committee of the People's Republic of China in September 2011.

In January 2010, Dr. Philip Campbell, Editor-in-Chief of Nature, suggested that the near 10 years should be defined as “10 years of neuropsychiatric disorder”. There have shown so many new discover, new development and new achievement in the field of neuroscience and psychiatry although it was not clear for the suggestion to influence the neuropsychiatric study. It is believed that it will change radically in the etiological cognition, diagnosis, treatment, prevention and control of neuropsychiatric diseases.

神经精神科学的过去、现在和将来

——《国际神经精神科学杂志》创刊词

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神经精神疾病是以神经系统病变、行为、心理活动紊乱为主要表现的一组疾病。该疾病困扰全球，2002年印发的《中国精神卫生工作规划(2002~2010年)》指出，全球约有4.5亿人患有神经精神疾病，占全球疾病负担近11%；美国总统心理健康新自由委员会2003年报告指出，美国神经精神疾病患病率约为20%；中国疾病预防控制中心2009年初公布的数据显示，我国各类神经精神疾病人数在1亿人以上。神经精神科学已成为人类科学研究的前沿，世界各国都在研究大脑的功能，试图弄清楚心理活动，特别是神经精神疾病的产生机制。

在神经精神科学研究快速发展的形势下，我们创办了一本国际性中文期刊——《国际神经精神科学杂志》，专注于神经精神科学领域最新进展，旨在为关注神经精神疾病的科学家、临床工作者和科研人员提供一个传播、分享和讨论神经精神科学基础研究和临床治疗成果的交流平台。

一、神经精神科学的过去

在古代医学典籍中，记载着众多神经精神障碍的病象及其诊治方法。3600多年前，我国甲骨文就有心疾、首疾等疾病的记载。古希腊著名医学家，神经精神病学之父希波拉底(Hippocrates, 公元前460~377年)认为脑是思维活动器官，提出神经精神病的体液病理学说。公元前300~200年《黄帝内经——灵枢·癫狂篇》最早论述了脏腑功能与精神活动的相关性。法国医生Pinel(1754-1826年)是世界上第一个被任命为“疯人院”院长。200年前本杰明(Rush Benjamin)建议在医学院开设精神医学和生物医学课程。1845年德国科学家Wilhelm Griesinger发表学术论文，第一次论述了神经精神失常是一种脑病。1902年美国奥尔巴尼总医院(Albany General Hospital)在世界上成立了首个神经精神科。

二、神经精神科学的现在

随着科学技术的发展，特别是神经科学和分子生物学的巨大成就，使我们能在分子、细胞和整体水平运用多学科技术对神经精神疾病进行基础与临床结合的综合研究。神经疾病常引发精神障碍，精神疾病也引起脑部异常性改变。一方面，采用神经解剖、神经生理、神经生化、神经免疫、神经药理等基础神经科学技术，发现易感基因，明确神经解剖定位，了解神经调控活动过程，分析脑高级功能，促进了神经精神疾病的认识；另一方面，临床研究数据、遗传家系脑库资源、非创伤性脑成像技术，印证了神经精神疾病基础研究结果。

人类已从基因、脑功能、精神药理等方面，阐述了神经精神疾病的病因。神经细胞间相互联系，神经细胞内特殊化学物质，使我们深入到神经细胞膜、受体、递质、核酸等分子水平探索脑功能，认识神经精神疾病的发生发展过程。

神经精神疾病具有非常高的遗传度，分子遗传学为其研究注入活力。通过结合全基因组关联研究(GWAS)和系统生物学方法，寻找新的易感位点，在神经精神疾病研究中获得了成功。

从形态和功能上了解大脑，寻找神经精神疾病生物学诊断指标。如通过正电子发射体层摄影(PET)/CT，示踪剂¹⁸F-FDOPA显示突触前多巴胺(DA)受体，了解动态DA通路变化，结合神经认知测查，获得了许多生物学

信息。

自 1952 年发现了氯丙嗪以来，神经精神疾病药物研发取得了进展。2002 年世界卫生组织(WHO)预测，到 2020 年神经精神药物约占全球医药市场总量的 14%。然而仅过了 6 年，即 2008 年神经精神药物全球总销量为 1048 亿美元，提前达到了这一预测数字。近 10 年神经精神药物研究非常活跃，大量新型神经精神药物进入临床试验，一些新药已在部分国家获准上市。

三、神经精神科学的将来

继美国国立精神卫生研究所(NIMH)投入数千万美元进行抗神经精神病药物临床疗效实验(CATIE)研究后，欧盟也投入巨资进行首发精神分裂症治疗研究。近年来，此种大投入、多中心、多学科参与的“巨型计划”，在神经科学和精神病学领域中频频出现。2010 年，美国国立卫生研究院(NIH)启动了“人类联接组计划”，旨在了解大脑内部联接的研究项目，预算 4000 万美元，整合美国、意大利、德国和英国 9 家研究机构资源，由神经解剖、磁共振成像(MRI)和神经信息学方面的几十位专家共同参与。在该项目中使用的 MRI 技术包括静息态、弥散张量显像、任务刺激、脑磁图和结构分析，其中仅一个研究子课题就要纳入来自 300 个家庭的孪生子及其兄弟姐妹等 1200 个健康个体。2011 年 9 月我国国务院常务委员会原则通过的《中华人民共和国精神卫生法》(草案)，规定各级人民政府应当将精神卫生工作纳入本地区国民经济和社会发展规划，提供资金等物质保障，建立和完善精神卫生服务网络，推进精神卫生事业发展。

2010 年 1 月，《自然》杂志主编菲利浦·坎贝尔(Philip Campbell)提议，将未来 10 年定为“神经精神障碍的 10 年”。虽然一时还看不到其对神经精神疾病研究的影响，但是神经精神科学领域的新发现、新进展、新成果层出不穷。相信不久将来，对神经精神疾病的过程认识、诊断治疗和预防控制将发生翻天覆地的变化。