NEWS FROM THE HEADACHE WORLD

ANNUAL MEETING OF THE DANISH HEADACHE SOCIETY
“HEADACHE AND SCIENCE - A TRIBUTE TO PROFESSOR JES OLESEN”
Glostrup (Copenhagen, Denmark), September 7th, 2001

On September 9th, Professor Jes Olesen - world-renowned neurologist, eminent researcher in the field of primary headache and current head of the Department of Neurology and Headache Centre of the Glostrup Hospital in Copenhagen, Denmark - turned 60. The anniversary did not go unnoticed: his collaborators decided to celebrate his birthday by honouring the outstanding achievements reached over the last 25 years by various Danish research groups under Prof. Olesen’s direction. The celebration took place on September 7th at the annual meeting of the Danish Headache Society in Glostrup, which this year was entitled “Headache and Science - A Tribute to Professor Jes Olesen”.

The meeting was opened by Peer Tfelt-Hansen (Glostrup, Denmark), who briefly reviewed the course of headache research in Denmark. The first major discoveries came with Thorvald Dalsgaard-Nielsen’s 1949 studies on headache attacks precipitated by percutaneous nitroglycerine test in migraine patients versus healthy controls. Over the following years, the most significant results were those obtained by Olesen himself. Following Skinhøj’s demonstration (1972) of decreased regional cerebral blood flow (rCBF) during migraine attacks, in the early 1980s Jes Olesen, studying (with a 254-channel multidetector scintillation camera) patients in whom carotid angiography triggered a migraine with aura attack, reported that the decrease in rCBF in these subjects did not reach the ischaemic threshold and that it spread slowly from the back forwards over the cerebral hemisphere, not respecting the territories of the larger cerebral arteries. His observations led to the first hypothesis on headache pathogenesis, which postulates that aura is a phenomenon similar to the “cortical spreading depression” described by Leao in 1944 in the rabbit cerebral cortex, i.e., a wave of decreased cortical activity originating in the occipital region and spreading postero-anteriorly at a rate of 2-3 mm per minute. Even though “cortical spreading depression” has not yet been unequivocally demonstrated in humans by the imaging techniques, the 1994 studies carried out by Lauritzen (Glostrup, Denmark) now suggest that the vascular phenomena observed are secondary to a primarily neurogenic mechanism, since their distribution appears to be independent of vascular supply.

Among the foreign speakers present at the meeting, James Lance (Sidney, Australia) skillfully reminded the audience of the great impact, worldwide, that Denmark, a small country, has nonetheless been able to make under Prof. Olesen’s scientific guidance. Witness the achievements in the fields of epidemiology, genetics, pathophysiology and in the treatment of the major forms of primary headache, unanimously regarded as landmarks by neurologists and investigators the world over. Al
so worthy of mention is Prof. Olesen’s considerable contribution to the literature, through his editing and publication of “The Headaches”: a scientific book, 10 years in the making, that is now in its second edition and surely a must for all those who want to become familiar with or improve their knowledge of the broad topic of headaches, either as a general or as a specialist line of research.

A milestone in the history of headache study and clinical practice was, of course, the “Classification and Diagnostic Criteria for Headache Disorders, Cranial Neuralgias and Facial Pain” drawn up by committees of international experts gathered under Prof. Olesen’s direction within the International Headache Society (IHS). Hartmut Göbel (Kiel, Germany) was given the task of explaining to the audience the various steps that led to the 1988 publication of the classification – now under revision – and of illustrating its major operating criteria. Stressing similarities and differences between classifications of living and non-living organisms and the IHS classification, Göbel provided an interesting and exhaustive description of the headache classification system which, minor adjustments apart, continues to be valid more than 10 years after its first edition.

The last reports on the agenda were delivered by members of the research groups currently working under Prof. Olesen’s direction: Birthe Krogh Rasmussen (Hillerød, Denmark) in the field of epidemiology, Michael Bjørn Russell (Gentofte, Denmark) in genetics, Helle Iversen (Glostrup, Denmark) in the field of animal models, and Rigmor Jensen (Glostrup, Denmark) in that of tension-type headache. Rasmussen briefly reported on the most significant findings obtained, by her group, in the Danish general population in 1991 and then analysed in greater detail the social and economic implications of the “headache” issue. In particular, physicians, researchers and administrators are increasingly focusing their attention on the direct and indirect costs of headache and of the health facilities that offer treatment for the disorder.

Molecular and genetic studies currently constitute one of the fastest growing fields of research and Russell’s Danish group must certainly be considered one of the leading study groups in this area. Increased knowledge of the role played by genetic factors in the various types of headache – migraine, cluster headache, and tension-type headache – has enabled investigators to take a giant leap forward in their understanding of the pathophysiology and transmission mechanisms of these disorders.

The need for animal models has led to the development of migraine models that, while not perfectly comparable with the human models, nonetheless allow researchers to conduct in vivo research into blood vessel reactivity, the release of neuropeptides from the nerve endings of some cranial nerves, specific gene expression following proper stimulation, and the action of several exogenous substances. Iversen reported on the studies carried out over the last decade to define the role of nitric oxide and of calcitonin gene-related peptide in the pathogenesis of migraine and spoke about the possible therapeutic implications of these discoveries.

Jensen closed the meeting with a summary of the pathogenic mechanisms underlying the onset of tension-type headache. Thanks to the use of advanced technologies – almost entirely restricted to Danish research groups – the role of peripheral and central factors has now been somewhat clarified as regards the two forms (episodic and chronic) of tension-type headache: in particular, muscular and myofascial factors and peripheral sensitization appear to have a greater influence on the former, whereas central sensitization is probably more directly involved in triggering the chronic
form and, especially, in the maintaining of the same. Due to the lack of drug treatments for chronic tension-type headache, future research could focus on the development of substances aimed at preventing or reducing central sensitization.

The meeting over, and after a quick change of clothes, the guest of honour, speakers and participants were invited to dinner at an enchanting restaurant on the shores of one of the myriad lakes that spring up like fresh jewels in the Danish countryside.

Paola Torelli
Headache Centre,
Institute of Neurology
University of Parma, Italy
E-mail: paolatorelli@libero.it