



Neuropsychology of HIV in India

Manisha Ghate, DCH, MBBS
National AIDS Research Institute
Pune, Maharashtra, India
mghate@nariindia.org.

Thomas D. Marcotte, PhD
HIV Neurobehavioral Research
Program
University of California, San Diego
San Diego, CA, USA
tmarcotte@ucsd.edu

India is one of the largest countries in the world, with a population of over one billion. It has a variety of geographical features, climatic conditions and an historic and unique culture. It is rich in languages, but for the convenience of its citizens the Constitution of India recognizes 22 official languages for the country. Approximately 65% of the population is literate, although there are no universal definitions and standards of literacy - they are based on the most common definition - the ability to read and write at a specified age.

HIV in India

In 1986, there was the first report of HIV infection, among

commercial sex workers from Chennai in South India. Per current estimates, there are 2.4 million adults living with HIV/AIDS in India (Pandey et al, 2009), with an overall adult HIV prevalence of 0.34%. The epidemic has moved from urban to rural India and from high risk to the general population. It is estimated that India had approximately 120,000 new HIV infections in 2009.

The Government of India formulated the National AIDS Control Organisation (NACO) programme in 1992 in response to the HIV situation in the country. **Phase-I (1992 - 1999)** was implemented with the objective to slow the spread of HIV to reduce future morbidity, mortality, and the impact of AIDS by initiating a major effort in the prevention of HIV transmission.

Phase-II (1999 - 2006) was aimed at reducing spread of HIV infection in India and strengthen India's capacity to respond to the HIV epidemic on a long-term basis.

The specific goal of **Phase-III (2007-2012)** is to reverse and stabilize the spread of AIDS by

reducing the rate of incidence by 60 per cent in high prevalence States and by 40 per cent in vulnerable States.

The Government of India launched the free antiretroviral treatment (ART) programme on 1 April 2004. The key goals of the national ART programme included: providing long-term ART to eligible patients, monitoring and reporting treatment outcomes on a quarterly basis, attaining individual drug adherence rates of 95% or more, increasing life span so that 50% of patients on ART are alive 3 years after starting the treatment and ensuring that 50% of patients on ART are engaged in or can return to their previous employment. NACO established 269 ART centers as of March 2010, and almost 300,000 patients were on ART.

The **National AIDS Research Institute (NARI)** was established in October 1992, under the aegis of the Indian Council of Medical Research, in Pune, an industrial city of three million people in the high HIV Prevalence State of Maharashtra in western India. This institute conducts multi-disciplinary

research involving virology, immunology, microbiology, clinical research, epidemiology, field-based trials and social and behavioral research. The Institute has progressively expanded its activities in various aspects of research on HIV and AIDS through infra-structural development, capacity building & research programmes.

The Neuropsychology of HIV

HIV infection often results in neuropsychological impairments. These are most common in individuals with advanced disease (a diagnosis of AIDS), but mild impairments can occur earlier in the course of the disease. Although the appearance of new, highly-effective medications (beginning in the mid-1990s) initiated a dramatic reduction in morbidity and mortality in countries with good antiretroviral access, a recent large study based in the U.S. (Heaton et al., 2010) found that even under good treatment conditions HIV-related neurocognitive disorders (HAND) remain prevalent, with approximately 30-50% of individuals showing cognitive problems.

The HIV epidemic is comprised of different viral subtypes, or clades. Most research on HAND has taken place in the U.S. and Europe, where clade B is predominant. However, worldwide clade C is the most common subtype. Based upon its characteristics, clade C has

been posited to possibly be less neurovirulent than other subtypes. For example, it may cause fewer monocytes to migrate across the blood-brain barrier, leading to less HIV in the CNS, and less HAND.



Previous studies of HAND in India have yielded mixed findings. Some have reported a low prevalence of HIV-associated dementia (2%), whereas other studies have found high rates of impairment. Two studies from southern India reported neurocognitive impairment in over 55% HIV infected individuals in at least two cognitive domains (Das Gupta et al., 2007; Yepthomi et al., 2006). However, major challenges regarding neuropsychological assessments in India include literacy issues, development of norms for a population that speaks multiple languages and generalizability of the results.

To examine the neurologic effects of HIV in India, collaborators at NARI and the HIV Neurobehavioral Research Program at the University of

California, San Diego, developed an NIMH-funded project with aims to a) better characterize the neurologic complications associated with clade C HIV in India, b) examine the effect of ART initiation on cognition, and, c) determine viral and host correlates of HAND and its treatment.

We are recruiting 250 HIV+ individuals, prior to starting ARV treatment, and 250 HIV seronegative controls. All participants receive a comprehensive neuropsychological evaluation, administered in Marathi, the official language of Maharashtra, as well as a neuromedical assessment and laboratory evaluation. After baseline, most individuals will start ARV treatment and we will follow them with comprehensive evaluations annually. Additionally, we are examining various biomarkers that may be associated with central nervous system injury, as well as host (participant) and viral genetic correlates.

In collaboration with Bob Heaton, PhD, we will be developing regression-based norms as well as “norms for change,” in order to help establish, beyond group changes, what constitutes unusual improvement, or decline, in individuals.

It is hoped that by incorporating viral and host studies, as well as the tracking of comorbidities, this project may potentially

identify the inter-individual differences that a) put one at risk for HAND, or b) affect CNS benefit from treatment. This would also yield insights regarding the neuropathogenesis of HAND in India, and potentially inform treatment approaches.

References

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Introducing the Student INS Committee

Sommer Thorgusen
University of Utah
sommer.thorgusen@psych.utah.edu

Emilie Franchow
University of Utah

At the 38th Annual Meeting of the INS in 2010, the Board of Governors hosted a student meeting to solicit suggestions for encouraging students and trainees to become more involved in the organization. After an hour of lively discussion of student needs and interests, a small group of graduate students and post-doctoral trainees volunteered to develop a committee and serve as advocates for students and trainees within the INS.

Their mission: to foster the professional development of trainees of the neuropsychological sciences by promoting student contributions to the study of brain-behavioral relationships, addressing the academic and professional needs of students and trainees, and encouraging student leadership within the INS.

Over the past year, the committee has worked to develop an infrastructure and goals, conduct a needs assessment of Associate Members of the INS, and develop conference programs aimed at promoting the

professional development of students and trainees.

The Student INS Committee (SINS) made its debut at the 39th Annual Meeting in Boston this year with four student-specific conference events.

First, an organizational meeting was held to introduce SINS, present its mission and goals, and recruit leaders to serve on the committee.

Second, SINS organized a symposium highlighting outstanding student research. For this symposium, five of the highest rated student abstracts were selected from among all student submissions and the authors were invited to give a 15-minute presentation of their work.

Third, SINS hosted a dinner sponsored by the INS Board of Governors to encourage student-networking.

Finally, SINS recruited the editors of three major neuropsychology journals (also members of the INS Board of Governors), including the *Journal of the International Neuropsychological Society*, *Neuropsychology*, and *The Clinical Neuropsychologist*, to present a workshop entitled "Publishing in Scientific Journals."

All events were met with great enthusiasm and participation from students and trainees, many of whom expressed

interest in serving on the SINS committee.

Since the 39th Annual Meeting, SINS has developed four subcommittees staffed by students and post-doctoral trainees from around the world and led by an executive committee of five students and trainees.

The International Student Liaison Subcommittee aims to identify and serve the unique needs of trainees in multiple countries by establishing mechanisms for international networking, working with the INS International Liaison Committee to develop services for international students, and facilitating international student access to resources, programs, and conference proceedings of the INS.

The Program Subcommittee will work to identify the professional development needs of trainees and organize relevant workshops, symposia, networking events and other programmatic services at the annual and midyear meetings of the INS.

An Awards and Development Subcommittee was formed to manage the budget for SINS and create student awards programs to recognize student contributions to the field and support international student travel to INS meetings.

Finally, the Outreach Subcommittee will maintain

communication with Associate Members of the INS (and other interested trainees) and work to develop online resources for professional development, networking and other student needs.

The SINS Committee is excited about its new role in the INS and looks forward to developing new programs and services to address the needs of students of the neuropsychological sciences around the globe. Our next step will be to offer student events at the Mid-Year Meeting in Auckland, New Zealand this July.

The INS has also set up a Student Development Fund to support the efforts of the SINS committee. The Student Development Fund will be used to support student and trainee involvement in INS through services such as online student forums, assistance for student international travel to INS meetings, and student oriented workshops at the INS meetings. To make a donation to the Student Development Fund, please visit the INS website.

For updates on the progress of the SINS committee, visit the INS website at www.the-ins.org or contact the Student INS Committee Chair, Sommer Thorgusen, at sommer.thorgusen@psych.utah.edu.

SINS Executive Committee
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Subcommittee

Jennifer Gidley Larson, Program
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Laxmi Lalwani, Awards &
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Forthcoming Conferences

**Neurizons 2011
From Molecules to Mind:
Making Sense of the Brain
May 25-28, 2011**

Goettingen, Germany
International Max Planck Research
School for Neuroscience
Email: neurizons@mpi-bpc.mpg.de
Web site: www.neurizons.uni-goettingen.de/

**23rd European Academy of
Childhood Disability
Annual Meeting
June 8-11, 2011**

Rome, Italy
Email: congressi@opbg.net
Web site: www.eacd2011.com/

**International Association for
Cross-cultural Psychology
Regional Conference
June 30-July 3, 2011**

Istanbul, Turkey
Web site: www.iaccp2011.org/

**2011 Mid-Year Meeting
of the INS
July 6-9, 2011**

Auckland, New Zealand
Email: ins@osu.edu
www.the-ins.org/2011-ins-mid-year-meeting

**8th IBRO World Congress -
International Brain Research
Organization
July 14-19, 2011**

Florence, Italy
www.ibro2011.org/site/home.asp
www.ibro.info/Pub/Pub_Front.asp

**24th ECNP Congress
European College of
Neuropsychopharmacology
Sept 3-7, 2011**

Paris, France
ecnp.eu/emc.asp?pageId=1686

**3rd Scientific Meeting of the ESN
Federation of European Societies
of Neuropsychology
Sept 7-9, 2011**

Basel, Switzerland
www.esn2011.org
Deadline for submitting symposia
& abstracts March 31, 2011

**43rd Meeting of the European
Brain & Behaviour Society
Sept 9-12, 2011
Sevilla, Spain**

[http://www.ebbs-
science.org/cms/upcoming-
meetings/](http://www.ebbs-science.org/cms/upcoming-meetings/)Deadline for proposals:
June 10, 2010

**World Congress on Huntington's
Disease
Sept 11-14, 2011**

Melbourne, Australia
Email: mo@asnevents.net.au
www.worldcongress-hd2011.org

**INS 40th Annual Meeting
February 15-18, 2012
Montreal, Canada**

Abstracts accepted
May 15- Aug 31, 2011
(dates subject to change)
www.the-ins.org/

**For more conferences,
see the ILC web site
Conferences page:
www.ilc-ins.org/news.shtml**

***International Liaison
Committee
Members***

Mariana Cherner, Chair
mcherner@ucsd.edu

Patricia Klaas, INSNET Editor
patricia.klaas@sbcglobal.net

William Seidel, Coordinator
Book & Journal Depository
wtswts5@yahoo.com

John Woodard, Coordinator
Research & Editing Consultant
Program
john.woodard@wayne.edu

Kathy May, Program Assistant &
Web Site Manager
kathy@ilc-ins.org

***ILC
Regional
Representatives***

Africa
Penny Holding
penny.holding@uclmail.net

Asia
Raymond Chan
rckchan2003@yahoo.com.hk

Australia & New Zealand
Skye McDonald,
smcdonald@psy.unsw.edu.au

Brazil
Lucia Braga
luciabraga@sarah.br

Central America
Ramiro Coello Cortés
drcoello@amnettgu.com

South America
Alberto Fernández
neurorehab@onenet.com.ar

Middle East
Miriam Levav
levavm@zahav.net.il
& Janna Assah,
assa@netvision.net.il

Russia
Sergey Kiselev
eskisa@rambler.ru

Nordic Countries
Laura Hokkanen
laura.hokkanen@helsinki.fi

Western Europe
Niall Pender
niallpender@beaumont.ie

Eastern Europe
Petr Kulistak
petr.kulistak@volny.cz

Southern Europe
Natalia Ojeda del Pozo
nojeda@fice.deusto.es

**Contact the Editor:
Patricia Klaas
INSNET Editor
patricia.klaas@sbcglobal.net**

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