

**POST GRADUATE INSTITUTE OF MEDICAL EDUCATION
& RESEARCH, CHANDIGARH**

- 1. Name** : Dheeraj Khurana
- 2. Date of Birth** : 18.3.71
- 3. Present Post Held** : Professor
Department of Neurology
Postgraduate Institute of Medical Education
& Research, Chandigarh, INDIA

Registration

- i) Registration number & date : 28163; 9-5-94
- ii) State Medical Council in which registered : Punjab Medical Council

Areas of Interest:

Stroke: Acute stroke management, Thrombolysis, Stroke Systems of care.

Multiple Sclerosis

Neurosonology: Carotid Duplex, Transcranial Doppler; Carotid and Intracranial atherosclerotic disease.

4. (a)Educational Qualifications

Degree	Year of passing	University	No. of Attempts
MBBS	Dec 1992	Punjab University, Chandigarh	First
MD (Medicine)	Dec 1996	Punjab University, Chandigarh	First
DM (Neurology)	May 2000	PGIMER, Chandigarh	First

(b)Awards/ Distinctions/ Honors conferred during

- **Graduate career**
 - 1st in Anatomy, distinction in Physiology and Biochemistry (1989)
 - 1st in first Prof. MBBS- Gold Medal (University) (1989)
 - 2nd in Second Prof. MBBS (University) (1991)
 - 1st in Final Prof. MBBS- Gold Medal (University) (1992)
 - Awarded Best Medical graduate in college (1992)
 - Pfizer award for best medical graduate (1992)
 - 1st in Internal Medicine, Surgery (1992)

- **Postgraduate career**
 - International Affairs Committee Award of American Academy of Neurology in 1998 (Co Author of Paper)
 - Best Paper Award in annual conference of Indian Academy of Neurology, Madurai September 2000

5. Experience

Designation	Period	Total Period	Institute
Professor	Oct 2015 - Till Date		PGIMER, Chandigarh
Additional Professor	Jul 2010- Sep 2015	5 years 3 Months	PGIMER, Chandigarh
Associate Professor	Jul 2007 –Jun 2010	3 years	PGIMER, Chandigarh
Assistant Professor Neurology	Dec 2002 – Jun 2007 (Permanent)	4 years 6 months	PGIMER, Chandigarh
Assistant Professor Neurology	Apr 2001 – Dec 2002 (Adhoc)	1 year 8 months	PGIMER, Chandigarh
Senior Resident Neurology	Feb 1998-Feb 2001	3 years	PGIMER, Chandigarh
Senior Resident Internal Medicine	Jan 1997-Feb 1998	1 yr 1 mon 12 days	DMC&H, Ludhiana
Junior Resident Medicine	Jan 1994-Dec1996	3 years	DMC&H, Ludhiana

6. Additional qualifications such as Membership of Scientific Societies/ Position held in any scientific societies:

Chair Tele-Neurology subsection of the Indian Academy of Neurology (Founder)

- **President** - Indian Stroke Association (2015-2016)
- **Vice President** – World NCD Federation
- **Executive member** - Neurosonology Society of India
- **Executive member**- PGI Neurological society
- Member - American Academy of Neurology (since 2002)
- Professional Member – American Stroke Association
- Member – European Stroke Organisation
- Member- World Stroke Organization
- Member - European Atherosclerosis Society
- Life Member- Indian Stroke Association
- Life Member of the Indian Academy of Neurology (IAN)
- Life Member of the Neurological Society of India (NSI)

Editorial Board Member

- **International journals**
 - European Journal of Neurology (since 2019)
 - European Stroke Journal (Since 2018)
- **National Journals**
 - European Journal of Neurology (Indian Edition)
 - Journal of Stroke Medicine
 - Journal of Postgraduate Medicine, Education and Research (Associate Editor)
 - International Journal of Noncommunicable Diseases (Associate Editor)

7. Awards / Recognition / Honors:

- **Research awards.**
 - **Quality Innovative Award 2020** – by American Academy of Neurology 2020 Annual Meeting – Apr 25 – May 1, 2020, Toronto Canada for his work on “Quality of Life and Caregiver Burden with Medical Application Based Post Stroke Care Strategy (MAPSS) – A Pilot Study.”
 - **Stroke Rehabilitation Award of International Stroke Conference 2020** at Los Angeles, USA Feb 2020: Research award results for the abstract: Medical Application based Post Stroke care Strategy for survivor and their caregivers (MAPSS): A Randomized Control Trial]
 - **Paul Dudley White Award of the American Heart Association for the highest rated abstract at the International Stroke Conference 2020** at Los Angeles, USA. Feb 2020
 - Skoch Transformational Innovation Award – Top 100 at Delhi – presented the research work on innovative code stroke – The effect of electronic private automatic branch exchange (EPABX) system-based stroke on the quality of acute stroke treatment.
 - Practicing Physician Quality award 2014 of the American Academy of Neurology at 66th Annual Meeting of AAN; 26th Apr – 3rd May 2014; Pennsylvania Convention Centre; Philadelphia USA.
 - Finalist for the BMJ Awards India 2014 in the category - Excellence in Medical Education.
 - Paper selected for best innovations at PGI Annual Research Day-2014

- American Academy of Neurology-International affairs committee award -1998 (Co-author)
- **Other awards**
 - Association of Indian Neurologists in America Appreciation Award at Washington in April 2014.
 - Thesis Guide and Supervisor of 2012 ISA (Indian Stroke Association) best Oral paper award recipient, Praveen Kesav.
 - Thesis Guide and Supervisor of 2014 ISA (Indian Stroke Association) runner up Oral paper award recipient, Gayathri Petluri.
 - Best paper award at the 8th annual meeting of Indian Academy of Neurology, held at Madurai in September 2000
 - Visiting Physician: Comprehensive Stroke Center, UAB, Birmingham, Alabama, USA and University Medical Center Ljubljana, Slovenia
 - Reviewer for Journal of Neurology, Neurosurgery and Psychiatry, Neurology, Journal of Neuroimaging, Neurology India, and Annals of Indian Academy of Neurology
- **Fellowships:**
 - IBRO (International Brain Research Organization) grant award for Brain awareness activities successively in 2005, 2006, 2008, 2009 and 2010
 - Fellowship awarded to attend the ESO (European Stroke Organization) Stroke Summer School at the Lille University, Lille, France. September 2009
 - Fellowship award to attend the 10th summer school of Myology at the La Salpeterier Hospital in Paris, France. June 2007
 - Traveling Fellowship of the International Stroke Society to attend the World Stroke conference at Cape Town, South Africa. October 2006
 - Fellowship of the World congress of Neurology to attend the 18th World Congress of Neurology at Sydney, Australia. Nov. 2005
 - IBRO fellowship for the 130th American Neurological Association at San Diego, USA. September 2005
 - Traveling fellowship of the World Congress of Neurology for the 5th World congress at Vancouver BC, Canada. June 2004
 - Traveling fellowship of the international headache congress for the IHC at Rome in September 2003

8. Publications:

INTERNATIONAL PUBLICATIONS

1. Thorén M, Escudero-Martínez I, Andersson T, et al. Reperfusion by endovascular thrombectomy and early cerebral edema in anterior circulation stroke: Results from the SITS-International Stroke Thrombectomy Registry. *Int J Stroke Off J Int Stroke Soc.* 2023;18(10):1193-1201.
2. Gairolla J, Khurana D, Sarma P, Kler R, Medhi B, Khullar M, Modi M, Naithani P, Kumar A. Association Between CYP2C19 Genotypes With Clinical Phenotypes and Adipokine Levels Among Ischemic Stroke Patients: A Prospective Observational Study. *Cureus* 15(5): e39265; May 2023
3. Sharmin S, Roos I, Simpson-Yap S, et al. The risk of secondary progressive multiple sclerosis is geographically determined but modifiable. *Brain J Neurol.* 2023;146(11):4633-4644.
4. Diouf I, Malpas CB, Sharmin S, et al. Variability of the response to immunotherapy among subgroups of patients with multiple sclerosis. *Eur J Neurol.* 2023;30(4):1014-1024.
5. Daruwalla C, Shaygannejad V, Ozakbas S, et al. Early non-disabling relapses are important predictors of disability accumulation in people with relapsing-remitting multiple sclerosis. *Mult Scler Houndmills Basingstoke Engl.* Published online February 27, 2023:13524585231151952.
6. Xavier D, Murphy R, Pais P, Pandian J, Gosala SRK, Mathur N, Khurana D, et al. Characteristics, clinical practice patterns and outcomes of strokes in India: INSPIRE - A multicentre prospective study. *Int J Stroke* May 2023.
7. Pandian JD, Kate MP, Sylaja PN, Khurana D, Pamidimukkala V, Ray BK, Nambiar VK, Aaron S, Mittal GK, Nagarjunakonda S, Pai AR. Secondary prevention with a structured semi-interactive stroke prevention package in INDIA (SPRINT INDIA): a multicentre, randomised controlled trial. *The Lancet Global Health.* 2023 Mar 1;11(3):e425-35.
8. Kumar M, Khurana D, Ahuja CK, Kumar A, Singh B, Mohanty M. Simple CaroTID-VasC score to predict one-year risk of stroke in symptomatic carotid stenosis patients. *Journal of the Neurological Sciences.* 2023 Mar 15; 446:120578.
9. Ahirwar D, Khurana D and Chowdhury SR. Device detects early signs of stroke. *Nature India,* Feb 2023.
10. Kumar M, Khurana D, Ahuja CK. Non-association of stroke risk with intracranial hemodynamic steal in patients with symptomatic internal carotid artery occlusions.

11. Khurana D, Reddy M, Mahajan A, Ramachandran D, Huded V, Prajapati C, Rangaragan A. Acute Ischemic Stroke–Evolution and Current Trends in Endovascular Management 2023; Neurology India.
12. Lakhanpal V, Lal V, Ray S, Khurana D, Takkar A, Chakravarty K, et al. Transcranial doppler parameters and vasomotor reactivity in people with migraine versus people with idiopathic intracranial hypertension and normal controls: A comparative prospective study. Oct 2021;J Neurol Sci 429.
13. Singh G, Sharma M, Kumar GA, Rao NG, Prasad K, Mathur P and Collaborators. The burden of neurological disorders across the states of India: The Global Burden of Disease. Lancet Glob Health; 2021 Aug;9(8): e1129-e1144.
14. Bhatia R, Sylaja PN, Padma Srivastava MV, Komakula S, Iype T, Parthasarathy R. Clinical profile and outcome of non-COVID strokes during pandemic and the pre pandemic period: COVID-Stroke Study Group (CSSG) India. J Neurol Sci 2021 Sep 15;428.
15. Nair SS, Sylaja PN, Pandian J, Padma Srivastava MV, Khurana D, Kaul S. Impact of revascularization therapies on outcome of posterior circulation ischemic stroke: The Indo-US stroke project. J Neurol Sci; 2021 Aug 15;427.
16. Pandian JD, Verma SJ, Arora D, Sharma M, Dhaliwal R, Khatter M et al. INSTRuCT: Protocol, Infrastructure, and Governance. June 2021. Stroke
17. Kate MP, Verma SJ, Arora D, Sylaja PN, Srivastava MVP, Bhatia R, Khurana D et al. Systematic Development of Structured Semi-interactive Stroke Prevention Package for Secondary Stroke Prevention. Annals of Indian Academy of Neurology; Oct 2020;23(5).
18. Bhatia R, Pedapati R, Komakula S, Srivastava P, Vishnubhatla S, Khurana D. Systematic Review. Journal of Stroke; Sep 2020; 22(3):324-335
19. Thakur JS, Kathirvel S, Paika R, Dhirar N, Nangia R, Kunjan K, et al. World NCD Federation guidelines for prevention, surveillance and management of noncommunicable diseases at primary and secondary health-care for low resource settings. Settings. International Journal of Noncommunicable Diseases Aug 2020; 5(5):1-68
20. Sylaja PN, Srivastava M, Shah S, Bhatia R, Khurana D, Sharma A, et al. The SARS-CoV-2/COVID-19 pandemic and challenges in stroke care in India. Annals of the New York Academy of Sciences; May 2020; 1473(1)

21. Gairolla J, Ahluwalia J, Khullar M, Kler R, Kishore K, Medhi B et al. Clopidogrel response in ischemic stroke patients: Is polymorphism or gender more important? Results of the CRISP study *Journal of Clinical Neuroscience*; Apr 2020; 76(358)
22. Chandel M, Shashi, Yashomati, Hemlata, Dhandapani M, Nagi M, et al. Assessment of cognitive-behavioral symptoms and functional status among stroke survivors. Jul 2020
23. Khurana D, Kaul S, Schneider D, Csanyi A, Adam I, Ichaporia NR, et al. (2019) Implant for Augmentation of Cerebral Blood Flow Trial-1 (ImpACT-1). A single-arm feasibility study evaluating the safety and potential benefit of the Ischemic Stroke System for treatment of acute ischemic stroke. *PLoS ONE* 14(7): e0217472.
24. Matusevicius, M., Paciaroni, M., Caso, V., Bottai, M., Khurana, D., de Bastos, M., Ahmed, N. (2019). Outcome after intravenous thrombolysis in patients with acute lacunar stroke: An observational study based on SITS international registry and a meta-analysis. *International Journal of Stroke*.
25. Venugopalan, V. Y., Bhatia, R., Pandian, J., Khurana, D., Kaul, S., Sylaja, P. N., Singhal, A. B. (2019). Regional differences in ischemic stroke in India (north vs. south). *International Journal of Stroke*.
26. Mahak, C., Shashi, Yashomati, Hemlata, Manisha, N., Sandhya, G., Dhandapani, S. S. (2018). Assessment of Utilization of Rehabilitation Services among Stroke Survivors. *Journal of neurosciences in rural practice*, 9(4), 461–467.
27. Zixiao Li, Jeyaraj Pandian, P.N. Sylaja, Yilong Wang, XingquanZhao, Liping Liu, Ch unjuan Wang, Dheeraj Khurana, M.V.Padma.Srivastava, Subhash Kaul, Deepti Arora, Lee H. Schwamm, Yongjun Wang, Aneesh B. Singhal (2018), Quality of care for ischemic stroke in China vs India *Neurology*, 91 (14)
28. Khurana, Dheeraj et al. (2018), Pharmacogenetics and the Antiplatelet Effect of Clopidogrel in North Indian Ischemic Stroke Patients, *Atherosclerosis Supplements*, Volume 32, 133.
29. Langhorne, P., O'Donnell, M. J., Chin, S. L., Zhang, H., Xavier, D., Avezum, A., Yusuf, S. (2018). Practice patterns and outcomes after stroke across countries at different economic levels (INTERSTROKE): an international observational study. *The Lancet*, 391.
30. V. Bhatia, V. Gupta, D. Khurana, R.R. Sharma and N. Khandelwal (2018). Randomized Assessment of the Safety and Efficacy of Intra-Arterial Infusion of Autologous Stem Cells in Subacute Ischemic Stroke. *American Journal of Neuroradiology*, 39 (5) 899-904.

31. Li, Zixiao & Pandian, Jeyaraj & Sylaja, PN & Wang, Yangzihan & Wang, Xingquan & Liu, Liping & Wang, Chunjuan & Srivastava, Padma & Khurana, Dheeraj & Kaul, Subhash & H Schwamm, Lee & Wang, Yongjun & B Singhal, Aneesh. (2018). Abstract WP289: Comparison of Ischemic Stroke in China versus India: Patient Characteristics, Performance Measures and Outcomes. *Stroke*. 49.
32. Sylaja, P.N., Pandian, J., Gopinath, R., Srivastava, M., Khurana, D., Schwamm, L.H., Kesav, P., Arora, D., Pannu, A., Thankachan, T.K., & Singhal, A.B. (2018). Ischemic Stroke Profile, Risk Factors, and Outcomes in India: The Indo-US Collaborative Stroke Project. *Stroke*; 49 1:219-222.
33. Kumar, M. et al. (2017). Stroke recurrence risk modelling in symptomatic carotid stenosis patients: Preliminary study. *Journal of the Neurological Sciences*; 381:874 – 875
34. D. Khurana, A. Kumar, S. Kamath, A. Patil, T. Kaur (2017). Mitoxantrone in aggressive relapsing multiple sclerosis in resource limited settings. *Journal of the Neurological Sciences*; 381:447.
35. D. Khurana, A. Kumara, A. Kumar (2017). Effect of onset to door time on door to needle times: Developing country tertiary care centre experience. *Journal of the Neurological Sciences*; 381: 866-867.
36. S. Kamath, D. Khurana, C. Ahuja (2017). Clot length and outcome of intravenous thrombolysis in cardioembolic strokes. *Journal of the Neurological Sciences*; 381:163.
37. P. Banerjee, D. Khurana, B. Saikia, P. Singh, K. Jangra (2017) Clinical scenario of patients with multiple sclerosis (MS): A north Indian perspective. *Journal of the Neurological Sciences*; 381: 240.
38. Lindley, RI, Anderson, CS, Billot, L et al. (2017) Family-led rehabilitation after stroke in India (ATTEND): a randomised controlled trial. *The Lancet*; 390:588-599.
39. Dheeraj Khurana, Biplab Das, Ashok Kumar, Amith Kumar S, Niranjan Khandelwal, Vivek Lal, Sudesh Prabhakar, (2017) Temporal Trends in Intravenous Thrombolysis in Acute Ischemic Stroke: Experience from a Tertiary Care Centre in India. *The Journal of Stroke & Cerebrovascular Diseases*; 26:1266-1273.
40. Gairolla, J., Kler, R., Modi, M., et al. (2017). Leptin and adiponectin: pathophysiological role and possible therapeutic target of inflammation in ischemic stroke. *Reviews in the Neurosciences*; 28(3):295-306.

41. Singh, R., Khurana, D., Mehta, S., Choudhary, A., Petluri, G., & Lal, V. (2016). Cerebellar ataxia due to Leptospirosis- a case report. *BMC infectious diseases*, 16(1), 748.
42. Anu Gupta Sudesh Prabhakar, Manish Modi, Sanjay K Bhadada Mani Kalaivani Vivek Lal Dheeraj Khurana (2016). Effect of Vitamin D and calcium supplementation on ischaemic stroke outcome: a randomised controlled open-label trial. *Int J Clin Pract.*; 70(9):764-70.
43. Aditya Choudhary, Amith Kumar S, and Dheeraj Khurana (2016) Letter by Choudhary et al Regarding Article, "Admission Hyperglycaemia and Poor Outcomes in Cerebral Venous Thrombosis". *Stroke*; 47.
44. Gregory W Albers et al (2015) Safety and efficacy of desmoteplase given 3–9 h after ischaemic stroke in patients with occlusion or high-grade stenosis in major cerebral arteries (DIAS-3): a double-blind, randomised, placebo-controlled phase 3 trial. *The Lancet Neurology*; 14: 575-584.
45. Kesav, P., & Khurana D. (2015). An unusual presentation of ulcerative colitis. *BMJ case reports*, 2015, bcr2014207181.
46. Dheeraj Khurana, Venugopalan Y. Vishnu, Pulikottil W. Vinny, Vivek Rishi (2015). Influence of a publication rotation in a neurology residency program in a developing country. *Neurology*; 84(2):197-9.
47. Rajan R, Khurana D, Lal V. Interictal cerebral and systemic endothelial dysfunction in patients with migraine: a case-control study. *J Neurol Neurosurg Psychiatry*.
48. Srivastava PV, Sudhan P, Khurana D, Bhatia R, Kaul S, Sylaja PN, Moonis M, Pandian JD (2014) Telestroke a viable option to improve stroke care in India. *Int J Stroke*. 100:133-4.
49. Ferreira T, Khurana D (2014) Mohindra S, Gupta K. Hemiatrophy as a presentation of a glioblastoma. *Clin Neurol Neurosurg*. 124:6-7.
50. Gupta A, Goyal MK, Vishnu VY, Ahuja CK, Khurana D, Lal V. (2014) Bilateral medial medullary infarction: the 'heart' reveals the diagnosis. *Int J Stroke*.; 9(4):18.
51. Vishnu VY, Petluri G, Gupta V, Lal V, Khurana D, Goyal MK (2014) Parkinson syndrome: a precise localization for abducens palsy. *J Neurol Sci*.; 336(1-2):288-9.
52. Gupta RK, Bapuraj JR, Khandelwal N, Khurana D (2014) Prognostic indices for cerebral venous thrombosis on CT perfusion: a prospective study. *Eur J Radiol*. 83(1):185-90.

53. Kesav P, Vishnu VY, Khurana D (2014), Fatal disseminated neurobrucellosis QJM.107 (4):321-2.
54. Kesav P, Vishnu VY, Khurana D. (2013), Is neurobrucellosis the Pandora's Box of modern medicine? Clin Infect Dis.; 57(7):1056-7.
55. Anderson CS, Heeley E, Huang Y, Wang J, Stapf C, Delcourt C, Lindley R, Robinson T, Lavados P, Neal B, Hata J, Arima H, Parsons M, Li Y, Wang J, Heritier S, Li Q, Woodward M, Simes RJ, Davis SM, Chalmers J (2013) Rapid blood-pressure lowering in patients with acute intracerebral hemorrhage. N Engl J Med.20:2355-65.
56. Kesav P, Modi M, Singla V, Khurana D, Prabhakar S. (2013) Kaleidoscopic presentation of neurobrucellosis. J Neurol Sci.;331(1-2):165-7
57. Kesav P, Khurana D, Bhadada S, Nada R, Das A, Lal V. (2013) Multiple endocrine neoplasia type I presenting as recurrent stroke like episodes. Clin Neurol Neurosurg. 115(9):1914-6.
58. Kesav P, Vishnu VY, Sharma A, Khurana D. (2013) False-positive 'cord sign'. BMJ Case Rep.
59. Khurana D, Mathur D, Prabhakar S, Thakur K, Anand A. (2013) Vascular endothelial growth factor and monocyte chemo attractant protein 1 levels unaltered in symptomatic atherosclerotic carotid plaque patients from north India. Front Neurol.; 4:27.
60. Sharma A, Khurana D, Kesav P. (2013) MRI findings in chronic relapsing inflammatory optic neuropathy. BMJ Case Rep.
61. Chakravarthi S, Kesav P, Khurana D. (2013) Wall-eyed bilateral inter nuclear ophthalmoplegia with vertical gaze palsy. QJM.
62. Rajan R, Khurana D, Kesav P. (2013) Teaching NeuroImages: Deep gray matter involvement in neurobrucellosis. Neurology;80(3)
63. Kesav P, VY V, Khurana D. (2012), A reversible cause of coma in epilepsy. BMJ Case Rep.
64. Mittal R, Munjal S, Khurana D, Gupta A. (2012) Parkinsonism following Bee Sting: A Case Report. Case Rep Neurol Med.
65. Vibha D, Prabhakar S, Khurana D, Khandelwal N. (2012) Varicella zoster vasculopathy presenting as lateral medullary syndrome. J Neuroviral; 18(6):538-40.

66. Fox RJ, Miller DH, Phillips JT, Hutchinson M, Havrdova E, Kita M, Yang M, Raghupathi K, Novas M, Sweetser MT, Vigiotta V, Dawson KT (2012) CONFIRM Study Investigators. Placebo-controlled phase 3 study of oral BG-12 or glatiramer in multiple sclerosis. *N Engl J Med.* 20; 367(12):1087-97.
67. Gupta Y, Bhadada SK, Shah VN, Upreti V, Bhansali A, Jain S, Khurana D, Kalara N. (2012) Carotid intima media thickness in patients with sporadic idiopathic hypoparathyroidism: a pilot study. *Endocr J.* 59(7):555-9
68. Sinha H, Khurana D. (2011) Teaching NeuroImages: a case of partial oculomotor palsy. *Neurology*; 77: e150-1.
69. Khurana D, Sahota P, Ahluwalia J, Prabhakar S. (2009) Multiple Myeloma presenting as cerebral venous sinus thrombosis. *Neurol Asia* 14:167-70
70. Khurana D, Sinha H, Chhabra R, Prabhakar S. (2009) Spinal cord meningioma in a case of myotonic dystrophy. *Neurol Asia.*14:157 – 159.
71. Khurana D, Kaul S, Bornstein NM (2009) ImpACT-1 Study Group. Implant for augmentation of cerebral blood flow trial 1: a pilot study evaluating the safety and effectiveness of the Ischaemic Stroke System for treatment of acute ischaemic stroke. *Int J Stroke.*; 4:480-5.
72. Prabhakar S, Sahota P, Kharbanda PS, Siali R, Jain V, Lal V, Khurana D. (2007) Sodium valproate, hyperandrogenism and altered ovarian function in Indian women with epilepsy: a prospective study. *Epilepsia.*48 (7):1371-7.
73. Sahota P, Das CP, Prabhakar S, Rajwanshi A, Singh P, Khurana D. (2005) Polyneuropathy in Osteosclerotic Myeloma coexisting with hyaline vascular Castleman's disease. *Journal of Clinical Neuromuscular diseases.*7:29-35
74. Khurana D, Saini M, Khandelwal N and Prabhakar S. (2005) Thrombolysis in a case of Lateral Medullary syndrome-CT angiographic findings. *Neurology.*64: 1232.
75. Khurana D, Prabhakar S. (2000) Organophosphorus intoxication. *Arch Neurol*;57: 600-602.
76. Singh G, Awasthi G, Khurana D, Wig J, Mahajan R. (1999) Neurophysiological monitoring of pharmacological manipulation in acute organophosphorus poisoning. The effects of pralidoxime, magnesium sulphate and pancuronium. *Encephalography and Clinical Neurophysiology*; 107: 140-148.

NATIONAL PUBLICATIONS

1. Ray S, Khurana D. The Telemedicine “Bubble”. J Postgrad Med Edu Res 2021;55(2):63
2. Bhatia R, Padma Srivastava MV, Sylaja PN, Komakula S, Upadhyay A, Pardasani V et al. Clinical features and outcome of stroke with COVID-19. COVID-19 stroke study group (CSSG), India Ann Indian Acad Neurol; Sep-Oct 2021;24(5):668-685.
3. Sylaja PN, Nair SS, Pandian J, Khurana D, Padma Srivastava MV, Kaul S, et al. Impact of Pre-Stroke Antiplatelet Use on 3-Month Outcome After Ischemic Stroke. Neurol India; Nov-Dec 2021;69(6):1645-1649.
4. Saxena S, Khurana D. Editorial Gait Analysis: Creating Balance. Dec2020 Journal of Postgraduate Medicine Education and Research 51(3):3-4
5. Kate M, Verma S, Arora D, Sylaja PN, Srivastava P, Bhatia R, Khurana D, Sharma A, Ojha P, Renjith V, Kulkarni G, Sadiq M, Jabeen S, Borah NC, Ray B, Sharma M, Pandian J. Ann Indian Acad Neurol. 2020 Oct; 23 (5).
6. Consensus Statement on Immune Modulation in Multiple Sclerosis and Related Disorders During the COVID-19 Pandemic: Expert Group on Behalf of the Indian Academy of Neurology. Annals of Indian Academy of Neurology; Apr 2020; 23
7. Bhatia R, Sylaja PN, Srivastava MV, Khurana D, Pandian JD. Consensus Statement - Suggested Recommendations for Acute Stroke Management during the COVID-19 Pandemic: Expert Group on Behalf of the Indian Stroke Association April 2020 Annals of Indian Academy of Neurology 23.
8. Kesav P, Khurana D, Prabhakar SK, Ahuja CK, Khandelwal N. Transcranial doppler and hematoma expansion in acute spontaneous primary intracerebral hemorrhage. Ann Indian Acad Neurol 2019; 22:195-8.
9. Khurana, D., Padma, M. V., Bhatia, R., Kaul, S., Pandian, J., Sylaja, P. N., Narayan, S. (2018). Recommendations for the Early Management of Acute Ischemic Stroke: A Consensus Statement for Healthcare Professionals from the Indian Stroke Association. Journal of Stroke Medicine, 1(2), 79–113.
10. Khurana D, Pandian J, Sylaja P N, Kaul S, Padma Srivastava M V, Thakur S, Arora D, Thankachan T, Singhal AB. (2018). The Indo-US Collaborative Stroke Registry and infrastructure development project. Neurol India; 66:276-8.
11. Mehta S, Khurana D, Jain G, Lal V. (2017) A rare but treatable cause of paroxysmal non kinesigenic choreoathetosis. Ann Indian Acad Neurol; 20:322-3.

12. Das, B., Khurana, D., & Ahuja, C. K. (2016). Bilateral "Swirl Sign": A predictor of rebleed. *Annals of Indian Academy of Neurology*, 19(4), 514–515. doi:10.4103/0972-2327.194460.
13. Padma, V. M., Bhatia, R., Kuruttukulam, G., Alurkar, A., Talwar, K. K., Khurana, D., Huded, V. (2016). A call for neurologists to take up stroke intervention. *Annals of Indian Academy of Neurology*, 19(4), 429–432.
14. Padma, V. M., Bhatia, R., Kuruttukulam, G., Alurkar, A., Talwar, K. K., Khurana, D., Huded, V. (2016). A call for neurologists to take up stroke intervention. *Annals of Indian Academy of Neurology*, 19(4), 429–432.
15. Takkar, A., Khurana, D., & Khandelwal, N. (2016). Kinked carotids: The "python" in the neck. *Annals of Indian Academy of Neurology*, 19(3), 409–410.
16. Gupta A, Jogi V, Goyal MK, Modi M, Khurana D. (2014) Chronic meningitis in systemic lupus erythematosus: An unusual etiology. *Ann Indian Acad Neurol.* (4):426-8
17. Gupta A, Prabhakar S, Modi M, Bhadada SK, Lal V, Khurana D (2014) Vitamin D status and risk of ischemic stroke in North Indian patients. *Indian J Endocrinol Metab.*18(5):721-5
18. Rajan R, Khurana D. (2014) Endovascular treatment of acute ischemic stroke: not yet a panacea for all troubles. *Neurol India.*62 (4):474.
19. Khurana D, Kumari B, Rajan R, Ahuja C, Vyas S. (2012) Efficacy and safety of thrombolysis in patients aged 80 or more with major ischemic stroke: special reference to nonagenarians. *Neurol India.*60 (6):686-7.
20. Prasad K, Kaul S, Padma MV, Gorthi SP, Khurana D, Bakshi A. (2011). Stroke management. *Ann Indian Acad Neurol*; 14:82-96.
21. Prasad K, Kaul S, Padma MV, Gorthi SP, Khurana D, Bakshi A. (2011). Stroke management. *Ann Indian Acad Neurol*; 14:82-96.
22. Khurana D, Ghosh S. (2011) Dramatic Improvement following an acute stroke. Is it a TIA? *Neurol India*; 58:95-55.
23. Sharma A, Lal V, Modi M, Khurana D, Bal S, Prabhakar S. (2010) Idiopathic CD4 lymphocytopenia presenting as refractory cryptococcal meningitis. *Ann Indian Acad Neurol*13 (2):136-8.
24. Saini M, Khurana D. (2010) Author's reply. *Ann Indian Acad Neurol.*13 (2):152-3.

25. Saini M, Khurana D. (2010) Chronic relapsing inflammatory optic neuropathy. Ann Indian Acad Neurol.13:61-3
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30. Duberkar D, Khurana D, Gupta V, Prabhakar S. (2009) Sudden death in a case of lateral medullary syndrome. Neurol India.57:225.
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8. Chapters in Books/ Book(s):

- i. **Khurana D, Ray S.** Transient ischemic attack: Types, clinical features, diagnosis and management In: Ranganathan LN editors. Reviews in Neurology (Stroke), Publisher: Wolters Kluwer,2019 p.101
- ii. **Khurana D,** Das B, Bhatia R. Acute Ischaemic Stroke In **Singh MB, Bhatia R** editors. Emergencies in Neurology, Publisher: Springer,2019, p 215-238
- iii. **Khurana D,** Mathur A, Das Biplab, Ralhan S: Carotid Artery Disease: When and how to treat? In Gurpreet S Wander and K Pareek: Progress in Medicine 2016 (Medicine Update 2016). Eds; New Delhi: Jaypee, The Health Science Publishers; 2016. P 1090-1096.
- iv. Felix C, **Khurana D,** Pandian JP: Stroke Unit in the Tropics in Chopra JS, Sawhney IMS: Neurology in Tropics. Ed Gurgaon: Reed Elsevier (India) Pvt. Ltd.; 2016. p 680-688.
- v. **Khurana D,** Rajan R, Turgut AT, Vishnu VY: Cerebrovascular Involvement in Neurobrucellosis and Mycotic Aneurysms In Turgut M, Haddad FS, Oreste D: Neurobrucellosis-Clinical, Diagnostic and Therapeutic Features. Ed Switzerland: Springer International Publishing; 2016. P 61-67
- vi. **Khurana D,** Singla A. Approach to stroke in young In S Prabhakar and G Singh: Differential diagnosis of Neurology. Eds. New Delhi: Jaypee The Health Science Publishers;2016 P. 494 – 508

- vii. **Khurana D**, Ferreira T: Management of Acute Ischemic Stroke in S Prabhakar, R Bansal: Monograms on Stroke. Eds Association of Physicians of India, Indian College of Physicians;2015 P 7 – 16.
- viii. **Khurana D**, Rajan R: Refining the diagnosis: Differential Diagnosis of Multiple sclerosis In MV Padma and R Bhatia: Clinical Practice of Multiple Sclerosis Eds New Delhi: Kontentworx; 2014 P 77 – 85
- ix. **Khurana D**, Duberkar D: Management of Acute Ischemic Stroke. In M Singh, R Bhatia: Emergencies in Medicine. Eds New Delhi: Byword Publishers; 2011
- x. Prabhakar S, **Khurana D**, Arul Rhaj S, Sen K. Recurrent Headaches and Facial Neuralgias. In BK Gupta, Vinit Suri: Current Practice in Neurology. Eds New Delhi: Pushpanjali Medical Publications Pvt. Ltd. First ed. 2005P 1-14
- xi. Prabhakar S, **Khurana D**: **Prothrombotic** states in stroke. In: Proceedings of Stroke Symposium-2002. Ed M Mehndiratta- 51st Annual conference of Neurological Society of India 2002 at Kochi (Kerala)

10. Published Abstracts

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2. **Khurana D**, Singh G, Avasthi G, Dhanuka A. Organophosphorus Poisoning: An electrophysiologic study in 50 patients. Neurology.1998.50(4) (Supplement 4); A305-A306.
3. Singh, G.; Mahajan, R.; Whig, J.; **Khurana, D**. The Importance of Electrodiagnosis in Acute Organophosphate Poisoning (AOPP): Neuromuscular Transmission Studies, Respiratory Electrophysiological Studies, and the Effect of Pralidoxime. Neurology. 1998 .50(4) (Supp 4): A420-A421.
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7. Kharbanda, P. S, Prabhakar, S, Lal, V, Das, C. P, **Khurana D**, Modi, M. Phenobarbital: Is Tolerability a Problem in Developing Countries - The Patients' Perspective. *Epilepsia* 2005; 46: 806
8. **Khurana D**, Prabhakar S, Grewal G, Lal V, Kharbanda PS. Carotid Duplex Studies in Young Strokes with Prothrombotic States. *Annals of Neurology*.2005; 58 (suppl 9): S45-46
9. **Khurana D**, Saini M, Prabhakar S. Study of extracranial carotid arteries by duplex ultrasound in young ischemic stroke. *Neurology*.2006.66 (Supplement2); A110
10. **Khurana, D.**, Chowdhary, S., Bapuraj, J. R., Mittal, B. R. Study of cerebrovascular reserve and its correlation with angiographic flow patterns: a comparison between young and elderly patients of symptomatic carotid artery disease. *International Journal of Stroke*. 1 Supplement 1:135, November 2006.
11. **Khurana D**, Sebastian J, Bapuraj JR, Kumar S, Prabhakar S. Clinical outcome in cerebral venous thrombosis: A CT perfusion correlation. *Stroke*. Feb. 2007;38
12. **Khurana D**, Mathews J, Gupta V, Prabhakar S. Prevalence Of Intracranial Atherosclerotic Disease Coexisting With Extracranial Atherosclerosis In The North Indian Population. *Neurology*.2011.
13. **Khurana D.**, Kesav, P., Ahuja, C., Prabhakar, S. (2013). Abstract TP39: Delayed CT" Swirl Sign" Predicts Outcome in Intracerebral Hemorrhage.
14. Thankachan, T. K., Arora, D., Pandian, J. D., Sylaja, P. N., Kaul, S., Padma, V., **Khurana, D** Singhal, A. B. (2014). Abstract T P266: Training and Certification of Research Teams Across Countries: The INDO-US Project Experience. *Stroke*, 45.
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18. Vishnu, V., Modi, M., Garg, V., Mohanty, M., Goyal, M., **Khurana, D.**, Prabhakar, S. (2016). Abstract TP454. *Stroke*, 47.
19. Pandian, J. D., William, **Khurana D** A. G., Kate, M. P., Norrving, B., Mensah, G. A., Davis, S., Yu, C. (2017). Strategies to improve stroke care services in low-and middle-income countries: a systematic review. *Neuroepidemiology*, 49(1-2), 45-61.
20. Vishnu, V. Y., Modi, M., Garg, V. K., Mohanty, M., Goyal, M. K., **Khurana, D.**, Prabhakar, S. (2016). Abstract TP454: Hemostatic Biomarkers Succeed While Inflammatory Biomarkers Fail to Differentiate Vascular Dementia from Alzheimer's Disease. *Stroke*, 47
21. Khurana, D., Rajendiran, R., Singh, P., **Khurana D**, Ahuja, C. (2017). Abstract TP239: The Influence of Cerebral Microbleeds on Blood Pressure Control in Acute Intracerebral Haemorrhage. *Stroke*, 48(suppl_1), ATP239-ATP239.
22. Li, Z., Pandian, J., Sylaja, P. N., Wang, Y., Wang, X., Liu, L., **Khurana D**, Schwamm, L. H. (2018). Abstract WP289: Comparison of Ischemic Stroke in China versus India: Patient Characteristics, Performance Measures and Outcomes. *Stroke*, 49
23. Medical Application Based Post Stroke Care Strategy (MAPSS) for survivors and caregiver: A pilot study - International Stroke Conference (ISC) 2020
24. Kaur G, Saravana S, Banerjee P, Kumar M. & **Khurana D**. Influence of dyslipidemia on multiple sclerosis disease activity. *Journal of the Neurological Sciences*: Oct 2019, (45) supplement 308
25. Garg P, Kumar P, Shakya K, Khurana **D**, Roy Chowdhury S. Detection of Brain Stroke using Electroencephalography (EEG); Conference: 2019 13th International Conference on Sensing Technology (ICST)
26. Ahirwar D, Shakya K, Banerjee A, Khurana **D**, Roy Chowdhury S. Simulation Studies for Non-Invasive Classification of Ischemic and Hemorrhagic Stroke using Near Infrared Spectroscopy; Conference: Biodevices 2019, At Prague, Czech Republic
27. Efficacy of Mitoxantrone in Aggressive disease in North Indian MS patients - 35th European Committee for Treatment and Research in Multiple Sclerosis –ECTRIMS and 24th Annual Conference of Rehabilitation in MS
28. Vulnerable Carotid Plaques in Symptomatic Carotid Stenosis induced Intracranial Vasomotor Reactivity - 5th European Stroke Organisation Conference (ESOC)2019

11. Research communicated at National & International Conferences:

1. 9th Annual conference of Indian Academy of Neurology, 2001.
2. Golden Jubilee Annual Conference, Neurological Society of India held in Mumbai, 2001.
3. National Stroke Symposium organized by Department of Neurology, Nizam's Institute of Medical Sciences held at Hyderabad, 2002.
4. 51st Annual Conference of Neurological Society of India under the aegis of NSI Kerala held at Kochin, 2002.
5. 10th Annual Conference of Indian Academy of Neurology 2002.
6. 53rd Annual Conference of Neurological Society of India held at INDORE 2004.
7. Xvth Annual Conference of Indian Academy of Neurology 2007.
8. IANCON 2012 20TH ANNUAL CONFERENCE OF Indian Academy of Neurology, Ahmedabad.
9. Bhattacharjee, Rohit, **D Khurana** (2015) Stroke Self-Management Rehabilitation Trial (SMART0DVD): Preliminary findings from an international, multi-site pilot trial. International Journal of Stroke. Presented at: Stroke Society of Australasia, At Melbourne
10. Das, Biplab, Vishnu, Venugopalan, Lal, Vivek, **Khurana Dheeraj**. (2015) Bilateral Putaminal Bleed: A rare manifestation of hypertensive Intracranial hemorrhage: Case series. Presented at: Indian National Stroke Conference INSC 2015
11. Vinny, Pulikottil, Vishnu, Venugopalan, Ahuja, Chirag, Lal, Vivek, **Khurana Dheeraj**. (2015). Hemiballismus in the emergency room. Presented at: Indian National Stroke Conference, INSC 2015, Chandigarh.
12. Vishnu, Venugopalan, Kamath, Shruthi & Rishi, Vivek, Gupta, Vivek Lal, **Khurana, Dheeraj**. (2015). Rituximab for treatment of Primary CNS Vasculitis. Presented at: Indian National Stroke Conference, INSC 2015, Chandigarh.
13. Das B, **Khurana D**, Ahuja C, Lal V, Prabhakar S. Intracerebral hemorrhage after thrombolysis: report from a tertiary care hospital presented at The 2nd European Stroke Organisation Conference 2016.
14. **Khurana D**, Kamath S, Ahuja C. Clot length and outcome of intravenous thrombolysis in cardioembolic strokes presented at The 2nd European Stroke Organisation Conference 2016

15. William, Akanksha, **Khurana Dheeraj**, M. Padma, Vasantha, Kaul, Subhash, Sylaja, PN Arora, Deepti, Pannu, Aman, D Pandian, Jeyaraj. (2016), WAKE-UP STROKE IN INDIA-THE INDO-US PROJECT. Presented at: Asia Pacific Stroke Conference combined with stroke society of Australasia- 2016, At Brisbane, Australia.
16. Ahirwar, Dalchand, Shakya, Kshitij, Banerjee, Aihik, **Khurana Dheeraj**, Roy Chowdhury, Shubhajit. Simulation Studies for Non-Invasive Classification of Ischemic and Hemorrhagic Stroke using Near Infrared Spectroscopy presented at Biodevices 2019, At Prague, Czech Republic.
17. D Khurana, A. Kumar, N. Khandelwal, N Kaur, A. Dhaliwal. Safety and outcomes of IV Tenecteplase in acute ischemic stroke: Initial Post Approval Experience from Tertiary Care Hospital in India. Presented at 11th World Stroke Congress in Montreal, Canada.
18. E-presentation for abstract entitled “Vulnerable Carotid Plaques in Symptomatic Carotid Stenosis induced Intracranial Vasomotor Reactivity” at 5th European Stroke Organisation Conference (ESOC), Milan Italy - 22nd – 24th May 2019
19. E-presentation for abstract entitled “Efficacy of Mitoxantrone in Aggressive disease in North Indian MS patients” at 35th European Committee for Treatment and Research in Multiple Sclerosis –ECTRIMS and 24th Annual Conference of Rehabilitation in MS, Stockholm, Sweden - 11th – 13th September 2019
20. Oral-presentation for abstract entitled “Medical Application Based Post Stroke Care Strategy (MAPSS) for survivors and caregiver: A pilot study” at International Stroke Conference (ISC) 2020, Los Angeles, CA, USA - 19th – 21st February 2020
21. Presentation on “Rituximab in treatment of Relapsing Multiple Sclerosis: Experience from a single center in North India” during the 7th annual Americas Committee for Treatment and Research in Multiple Sclerosis (ACTRIMS) Forum 2022 held from February 24-26 in West Palm Beach, Florida.
22. Presentation on “Trends in acute stroke treatments during the COVID era at a North Indian Stroke Center” during the World Stroke Congress 2022 held from October 26th – 30th 2022 in Singapore.
23. Presentation on “Association of HLA and EBV serology with MS susceptibility in North Indian MS patients” during the 8th annual Americas Committee for Treatment and Research in Multiple Sclerosis (ACTRIMS) Forum 2023 held from February 23-25 in San Diego, USA.

12. Clinical Trials/ Studies/ Registries:

- **Principal Investigator for the following multinational drug trials:**

- i. A Multi-Center, Randomized, Double-Blinded Phase 3 Study to Evaluate the Efficacy, Safety, and Tolerability of IMU-838 versus Placebo in Adults with Relapsing Multiple Sclerosis (ENSURE-2)
- ii. Remodel 1 - A randomized, double blind, double dummy, parallel group study, comparing the efficacy and safety of remibrutinib versus teriflunomide in participants with relapsing multiple sclerosis, followed by extended treatment with open label remibrutinib.
- iii. GN42272- A Phase III Multicenter, Randomized, Double-Blind, Double-Dummy, Parallel-Group Study To Evaluate The Efficacy And Safety Of Fenebrutinib Compared with Teriflunomide In Adult Patients With Relapsing Multiple Sclerosis.
- iv. EFC 16034 - A Phase 3, randomized, double-blind efficacy and safety study comparing SAR442168 to teriflunomide (Aubagio®) in participants with relapsing forms of multiple sclerosis (GEMINI 2)
- v. EFC 16645 - A Phase 3, randomized, double-blind, efficacy and safety study comparing SAR442168 to placebo in participants with nonrelapsing secondary progressive multiple sclerosis (EFC 16645 HERCULES)
- vi. Early versus Late initiation of direct oral Anticoagulants in post-ischaemic stroke patients with atrial fibrillation (ELAN): an international, multicentre, randomised-controlled, two-arm, assessor-blinded trial (Completed)
- vii. Edoxaban for Intracranial Hemorrhage Survivors with Atrial Fibrillation (ENRICH-AF)
- viii. A single arm phase IV clinical trial to describe the safety and efficacy of Teriflunomide in patients with relapsing forms of Multiple Sclerosis (SAFE) – (Completed)
- ix. Randomized, double-blind evaluation in secondary stroke prevention comparing the efficacy and safety of the thrombin inhibitor dabigatran etexilate 110 or 150 mg (twice daily) versus acetylsalicylic acid (100 mg once daily) in patients with embolic stroke of undetermined source (RE-SPECT ESUS) – **completed.**
- x. A randomized, double-blind, double-dummy, parallel-group study comparing the efficacy and safety of ofatumumab versus teriflunomide in patients with relapsing multiple sclerosis – **completed.**

- xi. ALITHIOS - An open label single arm multicentre extension study evaluating long term safety, tolerability and effectiveness of ofatumumab in subjects with relapsing multiple sclerosis – ongoing.
- xii. A prospective, multi centric, randomized, double-blind, parallel, phase III clinical study to assess efficacy of PMZ-1620 along with the standard treatment in patients of Acute Ischemic Stroke – (Completed)
- xiii. Multi Centre Feasibility Pilot study: Safety and Feasibility Assessment of the Neuropath TM IS System in Treatment of Acute Ischemic Stroke-A Pilot Study (Completed)
- xiv. A randomized, multicenter, placebo-controlled, and active reference (glatiramer acetate) comparison study to evaluate the efficacy and safety of BG00012 in subjects with relapsing-remitting multiple sclerosis (completed)
- xv. A Dose-Blind, Multicenter, Extension Study to Determine the Long-Term Safety and Efficacy of Two Doses of BG00012 Monotherapy in Subjects with Relapsing-Remitting Multiple Sclerosis (completed)
- xvi. A Randomised, double-blind, parallel-group, placebo-controlled study to evaluate the efficacy and safety of desmoteplase in acute ischemic stroke (Completed)
- xvii. INTERACT-2 Intensive Blood Pressure Reduction in acute Cerebral Hemorrhage trial (Completed)

• **Principal Investigator for the following multicentric trials:**

- i. INSTRuCT 2– Establishment of the Indian Stroke Clinical Trial Network – ongoing
- ii. Mobile Medical Application based Post Stroke care Strategy (MOBILITY) for survivors and their caregivers: A Randomized Controlled Trial.
- iii. Indian Trial of Tranexamic acid in Spontaneous Intracerebral Haemorrhage (INTRINSIC Trial)
- iv. RE-OPEN- Randomised Trial of Biosimilar TNK versus TPA during Endovascular Therapy for Acute Ischemic Stroke due to Large Vessel Occlusion
- v. INSTRuCT – Establishment of the Indian Stroke Clinical Trial Network – completed.
- vi. SPRINT – Secondary prevention by Structured Semi-interactive Stroke Prevention Package in India (SPRINT India) study – completed.

- vii. Cognitive Decline in Patients with Multiple Sclerosis: A cross sectional and Prospective Longitudinal Cohort Study.
- viii. Smartphone based Telestroke Vs 'Stroke Physician' led Acute Stroke Management (SMART INDIA): A cluster randomised trial.

- **Principal Investigator for the following Studies / Registries:**

- i. Health Technology Assessment (HTA) of National Stroke Care Registry Programme in India: Development of Hospital Based Stroke Registries (HBSR) in different regions of India.
- ii. **SITS SEARES** – Safe Implementation of Treatments in Stroke (ongoing)
- iii. Head positioning in Stroke Trials - Head PoST (Completed)
- iv. **INTERSTROKE** - Importance of Conventional and Emerging Risk Factors for Stroke: A Case Control study (Completed)
- v. Indo-US Collaborative stroke Registry and Infrastructure development (US-India Bilateral brain research Collaborative partnerships) (Completed)
- vi. **FAMILY- Led RehabiliTaTion aftEr stroke in INDia** -The ATTEND trial (Completed)

- **Co- Investigator for the following Studies / Registries:**

- i. **InVeST** - Intravenous Autologous bone marrow- derived stem cells therapy for patients with acute ischemic stroke: A Multi-institutional Study (Completed)
- ii. **INSPIRE** - In Hospital Prospective Stroke Registry: A large multicentre prospective study to determine etiologies, clinical practice patterns and outcomes of strokes in India. (Completed)
- iii. **STENOSIS** – Long term single versus dual antiplatelet therapy in patients with Ischemic Stroke due to Intracranial Atherosclerotic Disease

- **In hospital Stroke and Multiple Sclerosis program:** In-hospital database for Stroke and Multiple Sclerosis (MS Base) including patient awareness cum education/counseling program.
- Co-PI in the WHO sponsored program on Developing of National Guidelines for Management of Stroke at Various Levels of Health Care

- **Intramural funded studies**

- Development of immuno marker based predictive model for early detection and characterization of progressive Multiple Sclerosis – completed.

12. Contribution to Teaching at PGI – any special contribution to highlight

Apart from routine clinical bedside teaching to residents and senior residents, my chief contribution to teaching has been the Publication Rotation which I initiated as academic coordinator of our department. This was started to improve the research aptitude of senior residents and has been successful in its objective. I have continued to promote neuroscience through the Annual Brain Bee where high school students are quizzed and finally national level winners compete at the International Brain bee held annually. I have been the regional coordinator for the Chandigarh Brain Bee since 2006 and a member of the executive of the Indian national brain bee.

13. Outside Institute –Invitation for Lecture, Visiting Professor, Contribution in National Bodies to frame MCQs, OSCE etc.

1. Framed MCQ's for Odisha Public Service Commission for Neurology faculty selection in 2015
2. DM question paper setter for Baba Farid University (May 2015)
3. Examiner-DM Neurology Practical/ Valuation for July Session 2015, JIPMER, Puducherry
4. Expert for selection of Neurology faculty: AIIMS, Rishikesh-July 2015
5. Invited Lecture at IMTECH Sector 39 and GMCH sector 32, Chandigarh.
6. Visiting Faculty to Cleveland Clinic, Cleveland Ohio, USA and Ljubljana Clinical Center, Ljubljana, Slovenia and UAB, Alabama, USA.

14. Thesis/ dissertation (Ph.D./ MD/ MS/ DM) guided as Main Guide/ Co-guide:

S. No	Degree	Guide/ Co- guide	Name of Thesis	Year
1.	Ph.D.	Guide	Association of Genetic Polymorphism and Biomarker Levels of Apolipoproteins and Lipoproteins with Stroke and its Subtypes: A case control study	ongoing

2.	Ph.D.	Guide	Group tele rehabilitation for stroke survivors GUTTS – a randomized clinical trial	ongoing
3.	Ph.D.	Guide	Microbiome signature in Indian Multiple Sclerosis	Jun 2023
4.	Ph.D.	Guide	Multimodal imaging-based stroke risk score in patients with symptomatic carotid stenosis	Mar 2020
5.	Ph.D.	Guide	Medical application-based post stroke care strategy: a randomized controlled trial	July 2019
6.	Ph.D.	Guide	Role of Pharmacogenetics, Pharmacodynamics and Adipokine levels on the antiplatelets effects of Clopidogrel in Ischemic Stroke Patients	Jun 2018
7.	Ph.D.	Guide	Development of a multimodal diagnostic tool for early detection and characterization of degeneration in Multiple Sclerosis (MS): a biomarker perspective.	Jun 2020
8.	D.M. (Neurology)	Guide	To study the clinical and investigative profile of seronegative autoimmune encephalitis	ongoing
9.	D.M. (Neurology)	Guide	Evaluation of carotid plaque characteristics on contrast ultrasound and its correlation to Vasomotor reactivity with transcranial Doppler	Jun 2018
10.	D.M. (Neurology)	Guide	Prevalence of Insulin resistance and dyslipidemia in MS and its correlation with disease activity.	Dec 2020
11.	D.M. (Neurology)	Guide	The effect of electronic private automatic branch exchange (EPABX) system-based code stroke treatment.	Jan, 2017
12.	D.M. (Neurology)	Guide	Safety and clinical outcome of Intra-arterial infusion of bone marrow derived mononuclear cells in sub-acute ischemic stroke patients	Jun 2016
13.	D.M.	Guide	Prevalence of Patent Foramen Ovale in	Dec 2013

	(Neurology)		cryptogenic strokes of North Indian Population	
14.	D.M. (Neurology)	Guide	Interictal cerebral & systemic endothelial dysfunction in patients of migraine	July 2013
15.	D.M. (Neurology)	Guide	Validation of transcranial doppler to predict hematoma expansion in acute spontaneous non traumatic supratentorial intracerebral hemorrhage	Dec 2011
16.	D.M. (Neurology)	Guide	Proton magnetic resonance spectroscopic study in detection of upper motor neuron involvement in patients of motor neuron disease & its clinical correlation	June 2010
17.	D.M. (Neurology)	Guide	Ultrasonography versus nerve conduction studies in patients with carpal tunnel syndrome	Dec 2006
18.	D.M. (Neurology)	Guide	Clinical outcome of cerebral venous thrombosis- A CT perfusion correlation	June,2006
19.	D.M. (Neurology)	Guide	A comparative study of Bell's palsy treatment with acyclovir & prednisolone compared with prednisolone alone: A randomized blinded clinical & electrophysiological study	Dec 2005
20.	MD (Int. Med)	Guide	Expansion and implementation of tele stroke network system in the Union Territory of Chandigarh – Stroke Net Chandigarh	2021 or 2022
21.	MD (Int. Med)	Guide	Feasibility of Tele-Stroke network system in Union territory of Chandigarh- “STROKE NET CHANDIGARH”	Dec 2019
22.	MD (Int Med)	Guide	Role of FDG PET as biomarker in predicting treatment response in MS	June 2018

23.	MD (Int Med)	Guide	Incidence of ischemic changes in symptomatic carotid artery Stenosis with optimal medical management	June 2017
24.	MD (Int Med)	Guide	The influence of cerebral microbleeds on blood pressure control in acute intracerebral hemorrhage	July 2016
25.	M.D. Internal Medicine	Guide	Outcome of intravenous thrombolysis in acute cardio embolic stroke	July, 2015
26.	M.D. Internal Medicine	Guide	Outcome of first line therapy in multiple sclerosis in a tertiary care teaching hospital in North India	June 2014
27.	M.D. Anesthesia	Guide	Perioperative factors influencing the occurrence of neurocognitive dysfunction in patients undergoing cardiopulmonary bypass.	Dec 2013
28.	Internal Medicine	Guide	Efficacy of anti-platelets in the secondary prevention of ischemic stroke in young with and without prothrombotic state	Dec 2011
29.	M.S. (General Surgery)	Co – Guide	Role of decompressive surgery in ischemic cerebro vascular accidents	Dec 2007
30.	M.D. (Radiodiagn osis)	Co- Guide	To ascertain the relationship between diffusion weighted imaging findings and clinical outcome in cerebral venous thrombosis	Dec 2006
31.	M.D. (Radiodiagn osis)	Co – Guide	Carotid artery disease: Comparison of multi-detector computed tomography angiography with digital subtraction angiography	June 2006
32.	M.D. (Radiodiagn osis)	Co – Guide	A comparative study of cerebrovascular reserve and angiographic flow patterns in patients with symptomatic carotid occlusive disease.	Dec 2005
33.	M.D. Internal	Co – Guide	Duplex carotid ultrasound & transesophageal echo cardio graphic study in acute stroke	June 2005

	Medicine			
34.	Ph D	Co – Guide	Development and evaluation of mobile health application (mHealth) for the rehabilitation of patients with multiple sclerosis. A mixed method, pragmatic randomized controlled trial	Mar 2019 – Mar 2024
35.	M.Sc. (Medical surgical nursing)	Co – Guide	A methodological study to develop a nursing care protocol for nurses in meeting physical and physiological needs of stroke patients admitted in selected wards, Nehru hospital, PGIMER, Chandigarh, 2013-2014	2014
36.	B.Sc. Nursing (Post Basic)	Co-Guide	A descriptive study to assess the cognitive behavioral symptoms, functional status, and utilization of rehabilitation services among stroke survivors in Neuro OPD, PGIMER.	

15. CME/ Workshop conducted as Organizing Secretary/ Organizing Chairman: -

S. No.	Name of CME / Workshop	Dates	Role of Applicant as Faculty / Organizer
1.	Conducted Annual Conference of Society of Neurosonology - ACSN 2023 at Chandigarh	14th – 16th Dec 2023	Organizing Secretary
2.	MS Support Group Program – Move Strong 2022 to increase awareness about Multiple Sclerosis in collaboration with IGMSC Shimla	30-31 Jul 2022 and 10 Sep 2022 (Shimla)	Organizing Secretary
3.	Strike out Stroke- SoS '19- A public awareness campaign on stroke in association with NINE PGIMER – stroke support group program and rehabilitation counseling, street plays on stroke awareness, education camp for schools and Botox workshop	13th – 17th Nov 2019	Organizing Secretary
4.	Strike out Stroke- SoS '18- A public awareness campaign on stroke in association with NINE PGIMER – stroke support group program and rehabilitation counseling,	12th – 15th Nov 2018	Organizing Secretary

	poster competition on stroke awareness, education camp for schools		
5.	Strike out Stroke- SoS '17- A public awareness campaign on stroke in association with NINE PGIMER and Panjab University, Chandigarh	15th – 17th Nov 2017	Organizing Secretary
6.	MS Support Group Program	Jun 2017	Organizing Secretary
7.	MS Support Group Program – Move Strong 2016 to increase awareness about Multiple Sclerosis	5th Jun 2016	Organizing Secretary
8.	Strike out Stroke- SoS '15 - A public awareness campaign on stroke in association with NINE PGIMER and Panjab University, Chandigarh	29 th Oct, 2015	Organizing Secretary
9.	MS Support Group Program – Move Strong 2015 to increase awareness about Multiple Sclerosis	31 st May 2015	Organizing Secretary
10.	Conducted 10th Annual Conference of Indian Stroke Association- INSC 2015 at Chandigarh	13 th -15 th March 2015	Organizing Secretary
11.	Strike out Stroke- SoS '14 - A public awareness campaign on stroke in association with NINE PGIMER and Panjab University, Chandigarh	29-31 st Oct 2014	Organizing Secretary
12.	Strike out Stroke- SoS '13 - A public awareness campaign on stroke in association with Chandigarh Police, NINE PGIMER and Panjab University, Chandigarh	29 th Oct - 1 st Nov 2013)	Organizing Secretary
13.	Strike out Stroke- SoS '12 – Focusing on equipping the healthcare personnel with prompt stroke knowledge.	16 th Sep 2012	Organizing Secretary
14.	MS Support Group Program – Move Strong 2011 to increase awareness about Multiple Sclerosis		Organizing Secretary

15.	4 th Asia Pacific Congress Against Stroke, Neurosonology /TCD Workshop	29 th March 2007	Role: Faculty; conducted hands on workshop on carotid duplex and transcranial Doppler
16.	1 st PGI - NUH(Singapore) Neurosonology Workshop	7 th - 8 th Dec. 2009	Role: Organizer and faculty. Conducted a hands-on workshop on carotid Duplex and TCD jointly with Faculty from NUH
17.	National Guidelines for Stroke Management at various level of health care delivery (WHO-NPDCS)	14 th Nov 2009	Role: Organizer and Co-PI; Expert Committee meeting leading to Formulation of National Guidelines for stroke management

16. Extramural Grants

S. No.	Title of Project	Funding Agency	Amount	Date of sanction and Duration
1	The role of prothrombotic state in young stroke in the Indian population (Co-investigator)	ICMR	Rs 36 Lakh	September 2002; 3 years
2	Clinical outcome of Cerebral venous thrombosis: A CT- Perfusion correlation	ICMR	Rs 25,000 /-	June 2005; 2 years
3.	National Guidelines for Stroke Management at various level of health care delivery (Co-PI)	WHO	Rs 1.25 Lakh	September 2009; 6 months

4.	Comprehensive Stroke Center Training Program (PI)	Indo-US S&T Forum (DST)	Rs 11 Lakh	August 2009; 18 months
5	Brain Awareness Program	IBRO	Euro 500 every year	2006-2010
6	Indo US Collaborative Stroke Registry and Infrastructure Development	DBT	Approx 14 lakhs	2012-2014

17. Workshops / Trainings attended.

• International:

1. Invited to Michigan Stroke Network hospitals to discuss tele-health and a research platform in institute's setup from 25th Feb – 2 Mar 2023.
2. Invited to Michigan Stroke Network hospitals to promote tele-health and a research platform in institute's setup from 27th Feb – 5 Mar 2022.
3. Invited to visit several hospitals in Michigan to study Stroke Network Hub, Michigan USA – Feb 2020
4. Observership with the department of Neurology, Division of Intervention Neurology, University of Miami, Miller School of Medicine/Jackson Health System on 25th Feb – 1st Mar 2017, Miami.

• National:

1. Introduction to Cochrane Workshop as Delegate on 8th – 9th Nov 2021, PGIMER, Chandigarh
2. Asia Pacific Endovascular Workshop on Carotid Interventions as faculty on 3rd – 4th Sep, 2015; Delhi.
3. Training session on Good Clinical Practice & ATTEND trial collaborators meeting on 13th Mar 2014; Thiruvananthapuram, Kerala.
4. One week course in Health Research Methods & Evidence Based Medicine; 18th – 23rd Nov 2013; St. John's Medical College & Research Institute, Bangalore
5. Acute Stroke training workshop; ACT NOW; 23rd July 2010, Delhi

6. Good Clinical practice workshop in stem cell research; 31stJuly-1stAugust; 2009; at Vellore.
7. Critical Care Neurology; 17th-19th August; 2007; Hyderabad.
8. Underwent short term training for 2 weeks in Transcranial Doppler at Barrow Neurological Institute, Phoenix, Arizona. USA in October 2005 and for 1 week in April 2006
9. Lancet-ICMR Workshop on Medical writing for publication; 25th- Feb 2005; New Delhi

18. Speaker/Faculty/Lecture: -

• International:

1. 4th European stroke organization conference (ESOC 2018); 16th- 18th May 2018; Gothenburg, Sweden
2. MS HCP Preceptor ship in UKM; 10th – 11th May 2017; Munster, Germany as Faculty.
3. 10th World Stroke Congress; 26th – 29th Oct 2016; Hyderabad
4. 9th World Stroke Congress; 22nd - 25th October 2014; Istanbul Turkey as Faculty.
5. 46th Annual Academic Sessions 2013 held in collaboration with Ceylon College of physicians; 12th -14th September 2013, Colombo Sri Lanka as Resource person.
6. Karolinska Stroke Update 2012; November 11-13, 2012, Stockholm, Sweden as Faculty.
7. APSO TCD Workshop, Colombo, Sri Lanka; 29th Sep 2011 as Faculty.

• National:

1. Faculty in Stroke CME – Apollo Stroke Awareness Program; 17th Jan 2024
2. Faculty in SEACON NCD 2024 at Thiruvananthapuram from 4th – 6th Jan 2024
3. Faculty in World Stroke Day at Taj City Center, Gurgaon; 7th – 8th Nov 2023
4. Faculty in CSI Cardiac Prevent 2023 in Jaipur – 30th Sep – 1st Oct 2023
5. Faculty in 30th Annual Conference of Indian Academy of Neurology – IANCON 2023 at Madurai from 14th – 17th Sep 2023
6. Faculty in Global Stroke Alliance 2023; 6th – 8th Sep 2023 in New Delhi
7. Faculty in ICTRIMS 2023; 18th – 20th Aug 2023 in New Delhi
8. Faculty in ISA Stroke Summer School in Amritsar from 4th – 6th Aug 2023.
9. Faculty in IANSSCON 2023 at Bharati Vidyapeeth Medical College Pune from 27th – 29th Jul 2023.
10. Faculty in 4th Neurointervention Concept Elucidate 2023 (NICE 2023) at JW Marriott, Aerocity, New Delhi (Medanta Gurugram) from 27th – 29th Apr 2023.
11. Faculty in 11th Annual Conference for Neurorehabilitation specialists - IFNRCON 2023 at Mumbai (Hybrid) from 14th to 16th April 2023.
12. Faculty in 16th Annual Indian National Stroke Conference, INSC 2023" held at Chennai, Tamil Nadu from 30th Mar – 2nd Apr 2023.
13. Faculty in National Conference of Neuro-Ophthalmology 2023, PGIMER, Chandigarh from 10th – 12th Feb 2023.

14. Faculty in St John's National Neurosonology Meet 2022 in Bengaluru on 11th Dec 2022.
15. Faculty in IAN- AOCN Annual Meeting 2022 in New Delhi from 2nd – 6th Nov 2022.
16. Faculty in ISA Stroke Summer School 2022 in Udaipur from 19th – 21st Aug 2022.
17. Speaker to deliver a talk on acute ischemic stroke on 16th Jul 2022 at Eternal Hospital, Jaipur.
18. Faculty in State Conference on Diabetes Stroke in Palampur on 11th Jun 2022.
19. Faculty (Speaker) in a webinar "Enhancing the Indian Ecosystem to foster Clinical Research and expedite Access of Innovative Therapies" organized by Indian Society for Clinical Research (ISCR) held on 20 May 2022.
20. Faculty in 15th Annual Indian National Stroke Conference, INSC 2022" held at Mumbai, from 14th Apr – 17th Apr 2022.
21. Chairperson in the 23rd Annual Conference of Indian Society of Neuroradiology held at PGIMER, Chandigarh from 17th – 19th Dec 2021
22. Faculty at XIth Asia Pacific Stroke Conference 2021; 9th - 11th Dec 2021.
23. Faculty at 5th National Conference on Tobacco or Health (virtual); 25th – 27th Sep 2021.
24. Resource person in online course on Randomized Controlled Trials; 20th - 24th Sep 2021.
25. The Asia Oceanian Congress of Neurorehabilitation 2021 (AOCNR 2021) from 6-8th August 2021 (online) – 8th Aug 2021 Stroke Symposium Faculty (Chairperson).
26. Virtual Indian Stroke Association, Stroke Summer School 2021; 6-8 August 2021.
27. Task Force Group meeting for Stroke registry/MSU projects, 24th June 2021.
28. Planning meeting of 5th National Conference on Tobacco or Health (NCTOH) on 22nd June 2021 at Zoom
29. Task Force Expert Group to review the following new proposals (revised after incorporating the TF experts' suggestions) and RESTORE Trial held on 15th June 2021 via Videoconferencing
30. National Strategic Workshop – 12 May 2021 - WNCD on Global health and wellness initiative
31. Task Force Expert Group meeting, ICMR Headquarters, New Delhi - 2nd March 2020.
32. International Conference on Neurological Disorders and Therapeutics, NIPER, Ahmedabad, Gujarat - 24th – 26th October 2019
33. Joint Scientific Conference of Association and Indian Epilepsy Society Indian Epilepsy, Ahmedabad, Gujarat - 18th Jan 2020
34. 27th Annual Conference of Indian Academy of Neurology (IANCON 2019), Hyderabad.
35. 6th Stroke Summer School 2019, Bangalore.
36. Indian Committee for Treatment and Research in MS –ICTRIMS 2019, Kolkata

37. 6th Annual Conference of the Society of Neurology- Neurosonology 2019, Kolkata.
38. 13th Indian National Stroke Conference 2019, Ahmedabad.
39. Annual National Conference of Indian Federation of Neuro Rehabilitation (IFNR), 2019, Mumbai.
40. 3rd Annual Conference of Telangana Neurosciences Society, 2019, Hyderabad.
41. ICCA Stroke 2019, AIIMS, New Delhi.
42. Brain and Heart Conference 2019, Kathmandu, Nepal.
43. Training of Doctors, Nurses, and hospital staff to set up stroke unit in Haryana District Hospitals, 2018.
44. 26th Annual Conference of Indian Academy of Neurology – IANCON 2018
45. 8th Udaipur Neurosciences Course 2018, Udaipur
46. Establishment of Stroke Unit at DCH (National Program for Prevention and Control of Cancer, Diabetes, CVD and Stroke), September 2018, Panchkula.
47. 5th Stroke Summer School, September 2018, Goa
48. East MS Summit 2018, July 2018, Kolkata.
49. INSTRuCT Network Clinical Trial Development and Management Workshop, July 2018, ICMR Headquarters, New Delhi.
50. Indian Committee for Treatment and Research in MS –ICTRIMS 2018, Kochi
51. NIMHANS Annual Reviews in Practical Neurology (NIMHANS ARPrAN) July 2018, NIMHANS, Bangalore.
52. KMC Stroke CME; June 2018, Manipal
53. Bangalore Neuroimmunology Update as faculty; 22nd Jun 2018 – 23rd Jun 2018; Bengaluru.
54. 3rd Annual Congress of Society of Neurointervention & Stroke CME; SNVICON 2018, Ahmedabad.
55. 5th Annual Conference of the Society of Neurosonology as faculty; 9th Jun 2018 – 10th Jun 2018; Hyderabad.
56. ICTRIMS 2018 as faculty; 14th Jul 2018 – 15th Jul 2018; Kochi
57. 3rd National undergraduate medical conference on Neurological diagnosis and analysis as Speaker; 11th – 12th Apr 2018; DMC Ludhiana
58. 3rd Heart and Stroke Conclave 2018 as faculty; 1st Apr 2018; Ahmedabad.
59. INSC 2018 as faculty; 16th Mar, 2018 – 18th Mar 2018; New Delhi.
60. World Congress for Neurorehabilitation as faculty; 7th Feb 2018 – 10th Feb 2017; Mumbai.
61. Neuro Intervention Concept Elucidate as faculty; 15th Dec 2017 – 16th Dec 2017; Gurgaon.
62. Indo – US Science and Technology Forum (IUSSTF) as faculty; 1st Dec 2017 – 3rd Dec 2017; Delhi.
63. Neurology Update 2017 as speaker; 26th Nov 2017; Patna.
64. Annual Academic Sessions of the Association of Sri Lankan Neurologist as Guest Speaker; 17th Nov 2017 – 20th Nov 2017; Colombo, Sri Lanka.

65. International Stroke and Cardiovascular Disease Symposium (ISCDS) and International Congress of Interventional Neurology (ICIN); 27th – 28th Oct 2017; New Delhi.
66. Annual Stroke Masterclass 2017 as faculty; 23rd Sep 2017; Dwarka, New Delhi.
67. 3rd JIPMER Annual Research Day as speaker; 11th Sep 2017; Puducherry, Tamil Nadu.
68. 25th Annual Conference of Indian Academy of Neurology as faculty; 7th Sep 2017 – 10th Sep 2017; Chennai.
69. Stroke Summer School as speaker; 18th Aug 2017 – 20th Aug 2017; Mahabalipuram, Chennai.
70. ICTRIMS as faculty; 12th – 13th Aug 2017; New Delhi.
71. India MS Summit 2017 as speaker; 1st July 2017; Ahmedabad, India.
72. 2nd Annual Congress of Society of Neuro Vascular Interventions as faculty; 16th – 17th Jun 2017; Bangalore, India.
73. Annual National Conference of Society of Neurosonology as faculty; 6th – 7th May 2017; Coimbatore, India.
74. International Tropical Neurology Conference as speaker; 24th -26th Mar 2017; Mumbai, India.
75. 11th Indian National Stroke Conference 2017 as faculty; 17th – 19th Mar, 2017; Amritsar, India.
76. Annual Neurovascular Intervention Update (ANVI 2016) as faculty; 2nd – 4th Dec 2016; Gurgaon, India.
77. IANCON 2016 as Speaker; 10th – 14th Nov 2016; Kolkata, India.
78. 10th World Stroke Congress as Speaker; 26th – 29th Oct 2016; Hyderabad, India.
79. India MS Summit 2016 as speaker; 23rd and 24th July 2016; Begumpet, Hyderabad, India.
80. 1st Annual Conference of Society of Neurovascular Interventions (SNVICON 2016) as Faculty; 10th – 12th June 2016; Pune, India.
81. Neuro Update 2016 as Speaker; 22nd May 2016; Ludhiana, India.
82. 3rd Annual National Conference of Society of Neurosonology (NEUROSONOCON 2016) as Speaker: 7th – 8th the May 2016, Zydus Hospitals, Ahmedabad, Gujarat, India.
83. 3rd Dr. R.R. Thukral Midterm International Medical Sciences Academy (IMSA) as Guest Speaker; 23rd April 2016; Ludhiana, India.
84. 1st International Stroke Update SOS 2016 – Strike Out Stroke as Faculty; 9th – 10th Apr 2016; Chennai, India.
85. 7th Udaipur Conference on Stroke and Interventional Neurology 2016 as Speaker; 20th Mar 2016; Udaipur, Rajasthan, India
86. Stroke Update 2016 as Guest Speaker; 12th Mar 2016; AMRI Hospitals, Kolkata, India
87. 1st Heart and Stroke Conclave 2016 as Faculty; 24th Jan 2016; Ahmedabad, India.
88. APICON 2016 as Speaker; 28th – 31st Jan 2016; Hyderabad, India
89. APPI Global Health Summit Stroke Forum as Faculty and Panelist; 3rd Jan 2016; New Delhi.

90. 1st Annual Congress of Society of Therapeutic Neuro Interventions (STNI) as Faculty; 4th – 6th Dec 2015, Westin Gurgaon.
91. International Congress of Interventional Neurology 2015 as Speaker; 14th -15th Nov 2015; Hyderabad, Telangana, India.
92. Annual National Conference of the Society of Neuro Sonology as Faculty; 2nd – 3rd May 2015; Bangalore, India.
93. Brain and Heart 2015 as Faculty; 10th – 11th Oct 2015; Chennai, India.
94. 23rd Annual Indian Academy of Neurology as Speaker; 1st – 4th Oct 2015; Agra, India.
95. 3rd Summer School as Faculty; 14th – 16th August 2015; Munnar Kerala.
96. Stroke Preceptorship Program, ISA Chapter as Chief Faculty; 28th August 2015; Guwahati, Asam, India.
97. IAN Neu Con-North Conference as Speaker; 8th – 9th August 2015; New Delhi, India.
98. Annual National Conference of the Society of Neuro Sonology as Speaker; 2nd - 3rd May 2015; Bangalore, India.
99. TROPICON 2015 as Speaker; 11th – 12th April 2015; New Delhi.
100. Forum of Interactive Neurological Education (FINE) as Speaker; 19th – 21st Dec 2014; Mumbai, India.
101. IANCON 2011 as Faculty; 6th-9th Nov 2014, Pune.
102. ISA Summer Stroke School as Faculty; 22nd -24th August 2014; Pune Maharashtra India.
103. 9th National Conference (ISACON) 2014 as Faculty; 14th – 16th Mar 2014; at Thiruvananthapuram, Kerala.
104. 69th Annual Conference of The APICON 2014 as Faculty; 20th – 23rd February 2014; Ludhiana Punjab India.
105. 62nd Annual Conference of Neurological Society of India (NSI) as Faculty; 12th – 15th December 2013; Mumbai India.
106. 5th Udaipur Course – 2012 Stroke and Neurointervention as Speaker; 17th – 18th August 2013; GBH American Hospital Udaipur; Rajasthan India.
107. 1st International Conference of Heart & Stroke 2013 as Faculty/ Speaker; 8th- 10th November 2013; New Delhi India.
108. Annual Neurovascular Intervention (ANVI) update 2013 as Faculty/Speaker; 9th – 11th August 2013; Medanta – the Medicity; Gurgaon Haryana India.
109. 8th Edition of Neu Con 2013 as Speaker; 3rd – 4th August 2013, New Delhi India.
110. Stroke Symposium; 23-24th Nov 2012, Bangalore.
111. Poster presentation in IANCON, 2012; 5-7th Oct 2012 at Gujarat.
112. StrokeCon 2012 as Faculty; 9th-11th Mar 2012; Pune.
113. IANCON 2011 as Faculty; 22nd-25th Sept 2011, Pune
114. 59th annual Conference of the Neurological Society of India; 16th-19th Dec 2010; Jaipur India
115. Indo-US Stroke Conference; Dec 2010; PGIMER; Chandigarh India
116. European Neurological Society forum; 24-25th July 2010; Delhi.
117. ISA –ACT NOW Workshop on Stroke Faculty. New Delhi. 22nd July 2010

118. 5th National Congress of INDIAN STROKE ASSOCIATION (ISA 2010); 12th-15th March 2010; AIIMS; Delhi.
119. National Stroke CME 2009; 27th-28th June 2009; Pune
120. IANCON 2009; 17TH Annual Conference; 11-13th Sep 2009; Cochin
121. CME- Recent advances in medical treatment & Rehabilitation; 3rd April 2009; CMC Ludhiana
122. 2nd National Congress of the ISA; 20th-21st Jan; 2007; Mumbai
123. Intracerebral Haemorrhage –newer prospective; Callosum 06; Annual Conference of Neurological society of India-Kerela Chapter; 25th-26th Feb 2006; Cochin

- **Others**

1. External Examiner for PhD Viva Voce in AIIMS, New Delhi on 12th Feb 2024.
2. External Examiner for DNB Neurology examination, Bengaluru; 9th – 10th Feb 2024.
3. External Examiner in Sher-i-Kashmir Institute of Medical Sciences, Srinagar; 22nd – 23rd Dec 2023
4. Subject Expert for selection of faculties in the Department of Neurology, AIIMS Nagpur in the discipline of Neurology is scheduled for 13th May 2023 at 11.30 am.
5. Subject Expert for selection of faculties in the Department of Neurology, AIIMS, Bhubaneswar on 10 Apr 2023.
6. Subject Expert for selection of faculties in the Department of Neurology, AIIMS, Bibinagar, Hyderabad on 21 Sep 2022.
7. External Examiner for DM Neurology Practical Examination in SKIMS, Srinagar on 3rd – 4th Oct 2022.
8. External Examiner for DM Neurology Practical Examination in Kota Rajasthan on 1st – 2nd Sep 2022.
9. Assessor for Accreditation – DNB Neurology, Kovai Medical Centre from 5th Mar 2018 – 6th Mar 2018 at Coimbatore, Tamil Nadu.
10. External Expert for interview board of Assistant Professor, Neurology in Medical and Hospital on 2nd Aug 2017 at Patna, Bihar.
11. External Medical Examiner for DM Neurology Practical Examination at Kerala University of Health Sciences from 28th Jul 2017 - 29th Jul 2017 at Thrissur, Kerala.
12. External examiner for DM Neurology Practical Examination at Guru Govind Singh Indraprastha University on 21st Jul 2017 at New Delhi.
13. External Subject Expert for conducting the Annual Assessment promotion scheme of Faculty at Department of Neurology, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry; 2016.

19. Presentation in Conferences National/ International

- **International:**

1. Presentation on “.....” during the 9th Annual Americas Committee for Treatment and Research in Multiple Sclerosis (ACTRIMS) Forum 2024 held from 29th Feb – 2nd Mar 2024 in West Palm Beach, Florida.
2. Presentation on “Association of HLA and EBV serology with MS susceptibility in North Indian MS patients” during the 8th annual Americas Committee for Treatment and Research in Multiple Sclerosis (ACTRIMS) Forum 2023 held from February 23-25 in San Diego, USA.
3. Presentation on “Trends in acute stroke treatments during the COVID era at a North Indian Stroke Center” during the World Stroke Congress 2022 held from October 26th – 30th 2022 in Singapore.
4. Presentation on “Rituximab in treatment of Relapsing Multiple Sclerosis: Experience from a single center in North India” during the 7th Annual Americas Committee for Treatment and Research in Multiple Sclerosis (ACTRIMS) Forum 2022 held from February 24-26 in West Palm Beach, Florida.
5. Oral-presentation for abstract entitled “Medical Application Based Post Stroke Care Strategy (MAPSS) for survivors and caregiver: A pilot study” at International Stroke Conference (ISC) 2020, Los Angeles, CA, USA - 19th – 21st February 2020.
6. E-presentation for abstract entitled “Efficacy of Mitoxantrone in Aggressive disease in North Indian MS patients” at 35th European Committee for Treatment and Research in Multiple Sclerosis – ECTRIMS and 24th Annual Conference of Rehabilitation in MS, Stockholm, Sweden - 11th – 13th September 2019
7. E-presentation for abstract entitled “Vulnerable Carotid Plaques in Symptomatic Carotid Stenosis induced Intracranial Vasomotor Reactivity” at 5th European Stroke Organisation Conference (ESOC), Milan Italy - 22nd – 24th May 2019
8. Safety and outcomes of IV Tenecteplase in acute ischemic stroke: Initial Post Approval Experience from Tertiary Care Hospital in India. Presented at 11th World Stroke Congress in Montreal, Canada (D Khurana, A. Kumar, N. Khandelwal, N Kaur, A. Dhaliwal.)
9. Simulation Studies for Non-Invasive Classification of Ischemic and Hemorrhagic Stroke using Near Infrared Spectroscopy presented at Biodevices 2019, At Prague, Czech Republic (Ahirwar, Dalchand, Shakya, Kshitij, Banerjee, Aihik, Khurana Dheeraj, Roy Chowdhury, Shubhajit).
10. 23rd World Congress of Neurology; 16th – 21st Sep 2017, Kyoto, Japan for presentation of papers entitled “Mitoxantrone in aggressive relapsing multiple sclerosis in resource limited settings” and “Effect of onset to door time on door to needle times: developing country tertiary care center experience”.
11. 3rd European Stroke Organization Conference (ESOC); 16th – 18th May, 2017 Prague, Czech Republic for presentation of paper entitled “Safety and clinical outcome of intraarterial infusion of bone marrow derived mononuclear cells in sub-acute ischemic stroke: Randomized open labeled clinical trial.”

12. International Stroke Conference, 22nd – 24th Feb 2017 Houston, USA for presentation of paper entitled “The influence of Cerebral Microbleeds On Blood Pressure Control in Acute Intracerebral Haemorrhage”.
13. 2nd European Stroke Organisation Conference 2016; 10th – 12th May 2016 Barcelona; Spain presentation of paper entitled “Clot length and outcome of Intravenous Thrombolysis in cardioembolic strokes”.
14. 22nd World Congress of Neurology; 31st – 5th Nov 2015; Santiago, Chile for presentation of paper entitled “Temporal Trends of Intravenous Thrombolysis in Acute Ischemic Stroke Patients at a tertiary care center in northern India”.
15. 67th Annual Meeting of AAN; 18th -25th April 2015; Washington DC, USA.
16. 66th Annual Meeting of AAN; 26th April – 3rd May 2014; Pennsylvania Convention Centre; Philadelphia USA.
17. 2nd International Conference on Heart & Brain; 27th Feb – 1st Mar 2014; Paris, France.
18. 22nd European Stroke Conference; 28th-31st May 2013; London; UK.
19. International Stroke Conference 2013; 5th-7th Feb 2013; Honolulu; Hawaii.
20. 8th World Stroke Congress; Oct 2012; Brazil
21. 17th Meeting of the European society of Neurosonology and Cerebral Haemodynamics; May 2012; Italy
22. 21st European Stroke Conference; May 2012; Portugal
23. International Stroke Conference: Honolulu, USA: Feb 2011
24. 19th European Stroke Conference; May 2010; Spain
25. International Stroke Conference 2010; Feb 2010; Texas
26. 61st Annual Meeting of AAN; May 2009; Washington
27. 10th International Symposium on Acute Stroke therapy; Sep 2008; Hungary
28. International stroke Conference 2008; Feb 2008; USA
29. International Stroke Conference 2007; Feb 2007; California
30. 18th World Congress of Neurology; Nov 2005; Australia
31. American Neurological Association; Sep 2005; San Diego; CA
32. 5th World Stroke Congress; June 2004; Canada

• **National:**

1. Innovation Bazar 2016; Abstract Presentation
2. NSICON 2013: December 2013; Mumbai. India (Platform)
3. VIII National Congress of ISA; 1st-3rd March, 2013 at Ludhiana, Punjab, India.
4. IANCON, 2012; 5-7th Oct 2012 at Ahmedabad Gujarat (Platform Presentation).
5. 3rd National Congress of Indian Stroke Association; 8th-10th Feb; 2008; Amritsar
6. IANCON 2007 15TH ANNUAL Conference of Indian Academy of Neurology; 4th-7th Oct; 2007; Mumbai
7. Regional Asian Stroke Congress of ISA; 5th-8th January 2006; Chennai
8. Indo-US Symposium Cerebrovascular disorders; 12th-14th Dec 2005; Delhi
9. 53rd Annual Conference of neurological Society of India; 16th-19th Dec 2004; Indore

10. 10th Annual Conference of Indian Academy of Neurology; 27th-29th Oct 2002; Lucknow
11. 9th Annual Conference of Indian Academy of Neurology; 21st-23rd Sep; 2002; Delhi (Poster presentation)
12. Neuro electrophysiology Skills Workshop; 20th Sep; 2001; New Delhi (Paper presentation)
13. 8th Annual Conference of Indian Academy of Neurology; 22nd-24th Sep 2000; Madurai

• **Miscellaneous: -**

1. Drug Trial ENSURE 2 Investigator's meeting at Istanbul, Turkey: 20th – 22nd Feb 2024
2. HBSR Stroke Registry data review meeting at NCDIR-ICMR Bengaluru; 19th Jan 2024
3. Task Force group meeting on MS Registry (IMSRN) at ICMR Headquarters, New Delhi on 22nd Dec 2023.
4. Investigators Meeting – Remodel-1 Drug Trial in New Delhi on 19th – 20th Mar 2023.'
5. Investigators Meeting – BTKi studies -Sanofi in Mumbai – Nov 2022.
6. Attended World Neurosciences Summit III in New Delhi on 27th Aug 2022.
7. Task Force group meeting on MS Registry at ICMR Headquarters, New Delhi in Jul 2022.
8. Investigators Meeting – Fenhance Drug Trial in New Delhi on 24th – 25th Jun 2022.
9. Dissemination & Training workshop under Indian Stroke Clinical Trial Network (INSTRuCT Network)' in Goa 15-17 June 2022
10. Investigator's Meeting of INSTRuCT Network and SPRINT India trial at Hyderabad; 3rd Aug 2017.
11. Protocol COMB157G2301 Investigators' Meeting at Kowloon, Hong Kong; 14th– 16th Feb 2017.
12. Visiting Faculty in Stroke and neurocritical Care group at San Francisco General Hospital and Trauma Center: 5th – 6th Nov 2015 at San Francisco, California, USA
13. 13th ESO Stroke Summer School; Sep 2009; France
14. Resource person in Autumn CME 2004; Guwahati
15. PI, Faculty and Course Director in Indo US Comprehensive Stroke Center Training Program (IUSST) ;9th-11th Dec 2010

20. Contribution in Patient Care/ laboratory Services: -

- I have provided care and improved quality of care in my area of practice. The PGI stroke program which I initiated in 2002 to establish stroke thrombolysis at PGIMER has progressed in terms of increasing numbers and in providing quality care evident by faster door to needle times (~45 mins) and low hemorrhage rates.
- I was awarded the 2014 AAN Practicing physician Quality Award (at Pennsylvania, USA) for carrying out quality improvement research in stroke. Apart from the stroke

helpline which has been operational since 2002, I devised a novel code stroke which has the potential to further cut down the times treatment of stroke.

- Further, stroke intervention has been established in collaboration with the Neuroradiology team who provide 24X7 stroke intervention services. Stroke patients can now be treated within a window of 6-8hours. Lab services like Transcranial Doppler have been fully developed and currently we carry out PFO detection, HITS detection and Vasomotor reactivity testing routinely.

21. Innovation (new surgery/ protocol/ test/ method development)

1. **Code stroke “333”**: I devised a novel EPABX based code stroke by means of which the stroke team can be notified from any hospital extension with a simple code. The notification is through an SMS and voice call on the mobiles. It is currently under test to show its ability to reduce times to stroke treatment.
2. **Publication Rotation**: In the field of education research, I initiated a Publication rotation for the Neurology senior residents for improving their research aptitude. It was highly successful in bringing about a change in the research aptitude of residents which was evidenced by a nearly 200% increase in publications from our department. (Paper published in Neurology)
3. **Stroke Net Chandigarh** to connect Community hospitals of Chandigarh with PGI (Hub and Spoke model) for stroke treatments.

22. Highlights of research activity/ any other major contribution(s)

1. **Stroke and Neurosonology**: My chief research has been in the field of quality improvement in acute stroke treatment, which was awarded the 2014 AAN quality improvement award, in area of Neurosonology – I guided studies on Transcranial Doppler parameters to predict hematoma expansion in intracranial hemorrhages and detected prevalence of PFO using bubble contrast in cryptogenic stroke which has not been previously described in India. I have initiated basic research on the Association of adipokines, drug metabolizer and platelet receptor (P2Y12) single nucleotide polymorphisms in Ischemic Stroke patients.
2. I have been working on several hospital-based stroke registries and am also national coordinator of SITS India Stroke registry which has the data of over 20 centers across India.
3. **Multiple sclerosis**: I have been running the MS base registry which has a database of over 150 patients of MS.

23. **Patents** – Patent filed for Mobile Application – Stroke Home Care App

24. **Administrative and other responsibilities:**

- Member of Web Portal Developing Committee of PGIMER since Aug 2016.
- Member of Institutional Cultural Committee of PGIMER since Dec 2011.
- Academics coordinator of the Neurology department from 2010-2015
- Nodal officer of Neurology department for computerization and website program
- Responsible for processing purchases for our department and am a member of a number of committees of the Institute.
- Nominated Faculty of Medical Sciences of Baba Farid University of Health Sciences, Faridkot, Punjab from 1 Feb 2021 to 31 Jan 2022.

Future: Initiating Telestroke program at PGIMER, connecting and training peripheral to carry out acute stroke management. A drip and ship program are planned with the other major hospitals of Chandigarh to extend stroke treatment to these hospitals. Research in these areas is vital to understand the feasibility of these modalities in the Indian setup.

I believe that progress and change can happen if one is willing to initiate and lead. Change lies within one's own domain; Believing in your own ideas and having the courage to test them is what paves the way for a change.

(Dheeraj Khurana)

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