

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

1. **Name** : Dheeraj Khurana

2. **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

3. **(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**

1<sup>st</sup> in Anatomy, distinction in Physiology and Biochemistry (1989)

1<sup>st</sup> in first Prof. MBBS- Gold Medal (University) (1989)

2<sup>nd</sup> in Second Prof. MBBS (University) (1991)

1<sup>st</sup> in Final Prof. MBBS- Gold Medal (University) (1992)

Awarded Best Medical graduate in college (1992)

Pfizer award for best medical graduate (1992)

1<sup>st</sup> 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

## 4. 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 yrs	PGIMER, Chandigarh
Senior Resident Internal Medicine	Jan 1997-Feb 1998	1 year 1 month 12 days	DMC&H, Ludhiana
Junior Resident Medicine	Jan 1994-Dec1996	3 yrs	DMC&H, Ludhiana

**5. 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 Organisation

**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)

## 6. 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 66<sup>th</sup> Annual Meeting of AAN; 26<sup>th</sup>Apr – 3<sup>rd</sup> 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 8<sup>th</sup> 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 10<sup>th</sup> 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 18<sup>th</sup> World Congress of Neurology at Sydney, Australia. Nov. 2005

- IBRO fellowship for the 130<sup>th</sup> American Neurological Association at San Diego ,USA. September 2005
- Traveling fellowship of the World Congress of Neurology for the 5<sup>th</sup> 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. Khurana D, Petluri G, Kumar M, Bahl A, Kumar A, Gairolla J, Prabhakar S. Prevalence of Patent Foramen Ovale in North Indian Cryptogenic Young Strokes. *Neurol India*. 2022 May-Jun;70(3):1077-1082. doi: 10.4103/0028-3886.349647. PMID: 35864642.
2. 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.
3. 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.
4. 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.
5. 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.

6. Pandian JD, Verma SJ, Arora D, Sharma M, Dhaliwal R, Khatter M et al. INSTRuCT: Protocol, Infrastructure, and Governance. June 2021. Stroke
7. Choudhary R, Ashraf R, Thakur V, Kumaran MS. Teriflunomide-induced drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome. Clinical and Experimental Dermatology. 2021 Jan;46(1):166-9.
8. 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).
9. Bhatia R, Pedapati R, Komakula S, Srivastava P, Vishnubhatla S, Khurana D. Systematic Review. Journal of Stroke; Sep 2020; 22(3):324-335
10. 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
11. 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)
12. 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)
13. Chandel M, Shashi, Yashomati, Hemlata, Dhandapani M, Nagi M, et al. Assessment of cognitive-behavioral symptoms and functional status among stroke survivors. Jul 2020
14. 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.
15. 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.

16. 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*.
17. 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.
18. Zixiao Li, Jeyaraj Pandian, P.N. Sylaja, Yilong Wang, XingquanZhao, Liping Liu, Chunjuan Wang, Dheeraj Khurana, M.V. PadmaSrivastava, Subhash Kaul, Deepti Arora, Lee H. Schwamm, YongjunWang, Aneesh B. Singhal (2018) , Quality of care for ischemic stroke in China vs India *Neurology*, 91 (14)
19. Khurana, Dheeraj et al. (2018),Pharmacogenetics and the Antiplatelet Effect of Clopidogrel in North Indian Ischemic Stroke Patients, *Atherosclerosis Supplements*, Volume 32, 133.
20. 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.
21. 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.
22. 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.
23. 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.
24. Kumar, M. et al. (2017). Stroke recurrence risk modelling in symptomatic carotid stenosis patients: Preliminary study. *Journal of the Neurological Sciences*; 381:874 – 875
25. 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.



26. D. Khurana, A. Kumara, A. Kumarb (2017). Effect of onset to door time on door to needle times: Developing country tertiary care center experience. *Journal of the Neurological Sciences*; 381: 866-867.
27. S. Kamath, D. Khurana, C. Ahujac (2017). Clot length and outcome of intravenous thrombolysis in cardioembolic strokes. *Journal of the Neurological Sciences*; 381:163.
28. P. Banerjee, D. Khurana, B. Saikiab, P. Singhc, K. Jangrad (2017) Clinical scenario of patients with multiple sclerosis (MS): A north Indian perspective. *Journal of the Neurological Sciences*; 381: 240.
29. 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.
30. Khurana D, Das B, Kumar A, Kumar A, Khandelwal N, Lal V, Prabhakar S. Temporal trends in intravenous thrombolysis in acute ischemic stroke: experience from a tertiary care center in India. *Journal of Stroke and Cerebrovascular Diseases*. 2017 Jun 1;26(6):1266-73.
31. 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.
32. 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.
33. Gupta A, Prabhakar S, Modi M, Bhadada SK, Kalavani M, Lal V, Khurana D. Effect of Vitamin D and calcium supplementation on ischaemic stroke outcome: a randomised controlled open-label trial. *International journal of clinical practice*. 2016 Sep;70(9):764-70.
34. Choudhary A, Kumar S A, Khurana D. Letter by Choudhary et al Regarding Article, "Admission Hyperglycemia and Poor Outcomes in Cerebral Venous Thrombosis". *Stroke*. 2016 Jun;47(6):e170-.
35. 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.
36. Kesav, P., & Khurana D. (2015). An unusual presentation of ulcerative colitis. *BMJ case reports*, 2015, bcr2014207181.

37. Khurana D, Vishnu VY, Vinny PW, Rishi V. Influence of a publication rotation in a neurology residency program in a developing country. *Neurology*. 2015 Jan 13;84(2):197-9.
38. Rajan R, Khurana D, Lal V. Interictal cerebral and systemic endothelial dysfunction in patients with migraine: a case-control study. *J Neurol Neurosurg Psychiatry*.
39. 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.
40. Ferreira T, Khurana D (2014) Mohindra S, Gupta K. Hemiatrophy as a presentation of a gliopendymal cyst. *Clin Neurol Neurosurg*. 124:6-7.
41. 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.
42. 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.
43. 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.
44. Kesav P, Vishnu VY, Khurana D(2014), Fatal disseminated neurobrucellosis *QJM*.107 (4):321-2.
45. Kesav P, Vishnu VY, Khurana D. (2013), Is neurobrucellosis the Pandora's Box of modern medicine? *Clin Infect Dis*.; 57(7):1056-7.
46. 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.
47. Kesav P, Modi M, Singla V, Khurana D, Prabhakar S.(2013) Kaleidoscopic presentation of neurobrucellosis. *J Neurol Sci*.;331(1-2):165-7
48. 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.

49. Kesav P, Vishnu VY, Sharma A, Khurana D. (2013) False-positive 'cord sign'. *BMJ Case Rep.*
50. 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.
51. Sharma A, Khurana D, Kesav P. (2013) MRI findings in chronic relapsing inflammatory optic neuropathy. *BMJ Case Rep.*
52. Chakravarthi S, Kesav P, Khurana D. (2013) Wall-eyed bilateral internuclearophthalmoplegia with vertical gaze palsy. *QJM.*
53. Rajan R, Khurana D, Kesav P. (2013) Teaching NeuroImages: Deep gray matter involvement in neurobrucellosis. *Neurology*;80(3)
54. Kesav P, VY V, Khurana D. (2012), A reversible cause of coma in epilepsy. *BMJ CaseRep.*
55. Mittal R, Munjal S, Khurana D, Gupta A. (2012) Parkinsonism following Bee Sting: A Case Report. *Case Rep Neurol Med.*
56. Vibha D, Prabhakar S, Khurana D, Khandelwal N. (2012) Varicella zoster vasculopathy presenting as lateral medullary syndrome. *J Neurovirol*; 18(6):538-40.
57. 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.
58. 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
59. Sinha H, Khurana D. (2011) Teaching NeuroImages: a case of partial oculomotor palsy. *Neurology*; 77:e150-1.
60. Khurana D, Sahota P, Ahluwalia J, Prabhakar S. (2009) Multiple Myeloma presenting as cerebral venous sinus thrombosis. *Neurol Asia* 14:167-70
61. Khurana D, Sinha H, Chhabra R, Prabhakar S. (2009) Spinal cord meningioma in a case of myotonic dystrophy. *Neurol Asia.* 14:157 – 159.
62. 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.

63. 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.
64. 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
65. Khurana D, Saini M, Khandelwal N and Prabhakar S. (2005) Thrombolysis in a case of Lateral Medullary syndrome-CT angiographic findings. *Neurology.*64: 1232.
66. Khurana D, Prabhakar S. (2000) Organophosphorus intoxication. *Arch Neurol;*57: 600-602.
67. 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 (Suppl 1)
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(Suppl 1)
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 nonkinesigenic 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
26. Bal S, Lal V, Khurana D, Prabhakar S. (2009) Midbrain infarct presenting as isolated medial rectus palsy. *Neurol India.* 57:499-501.
27. Khurana D, Saini M, Laldinpuii J, Khandelwal N, Prabhakar S. (2009) Mobile plaque in the internal carotid artery: A case report and review. *Ann Indian Acad Neurol.*12:185-7.
28. Khurana D, Bal S. (2009) Neuroprotection in stroke. *J Indian Med Assoc.*107:378-82.
29. Singh G, Khurana D. (2009) Neurology of acute organophosphate poisoning. *Neurol India.*57:119-25.

30. Duberkar D, Khurana D, Gupta V, Prabhakar S. (2009) Sudden death in a case of lateral medullary syndrome. *Neurol India*.57:225.
31. Bal S, Khurana D, Lal V, Prabhakar S. (2009) Posterior circulation stroke in a cannabis abuser. *Neurol India*.57:91-2.
32. Khurana D, Sharma M, Prabhakar S. (2008) Hemi orolingual angioedema. *Annals of Indian Academy of Neurology*; 11:199.
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34. Das A, Sakhuja V, Khurana D, Kakkar N, Kalra N, Bambery P. (2007) A case of systemic vasculitis. *Indian J Nephrol* ;17:29-38
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38. Prabhakar S, Khurana D (2002) Uncommon headaches. *Annals of Indian Academy of Neurology*; 5: 65-70.
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40. S. Prabhakar, Khurana D, Gill KD, Choudhary S, Lal V, Das CP (2000) Neurological complication of Dropsy : From possibility to reality. *NeurolIndia*. 48 : 144-148.
41. Singh G, Bhatia RS, Khurana D, Khurana SB. (1999) Reappearing CT lesions: 4 cases. *NeurolIndia*; 47 : 47-50.
42. Singh G, Khurana D, Awasthi G, Mahajan R and Soni RK. (1998) The spectrum and clinical correlation of electrophosphorus poisoning.A study of 55 patients. *NeurolIndia*; 46: 28-35.

## 7. 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 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:** Monographs 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, VinitSuri: 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 M Mehndiratta- 51<sup>st</sup> Annual conference of Neurological Society of India 2002 at Kochi(Kerala)

## 10. Published Abstracts

1. I. **Kumar A**, **Khurana D**, Pattanaik S, Kumar M, Modi M, Kaur S, Ghai S, Nagi M, Gairolla J, Chellappa R, Narayanan CK. 'Stroke Home Care'- A Mobile Application: Home Based Innovative Nursing Care Intervention Developed by Stroke Nurse: A Need of the Time in Covid-19 Pandemic Like Situation Stroke. Mar 2021; 52.suppl 1.P839
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.
4. **Khurana D**, Prabhakar S, Lal V, Kharbanda PS, Das CP and Bhatia R. The effect of Flunarizine on visual evoked potentials in migraine: a 3 month follow up study. Cephalgia.2003;23(7):748
5. **Khurana, D**, et al. Outcome of thrombolysis in acute vertebrobasilar artery thrombosis: PO01-40. International Journal of Stroke. 2008;3455
6. **Khurana D**, Bapuraj JR, Khandelwal N, Hasan KM, Misra S, Prabhakar S. Top of the Basilar artery syndrome following thrombolysis in acute basilar artery occlusion. EJON.2005.Suppl2:52;P1049
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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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16. Singhal, A. B., **Khurana D.**, Kaul, S., Padma, M. V., Arora, D., Kaur, P., Pandian, J. D. (2015). Abstract T MP84: Quality of Stroke Care in India: the Indo-US Stroke Project. *Stroke*, 46(suppl\_1), ATMP84-ATMP84.
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18. Vishnu, V., Modi, M., Garg, V., Mohanty, M., Goyal, M., **Khurana, D.**, Prabhakar, S. (2016). Abstract TP454. *Stroke*, 47(Suppl\_1).
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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 - 35<sup>th</sup> European Committee for Treatment and Research in Multiple Sclerosis –ECTRIMS and 24<sup>th</sup> Annual Conference of Rehabilitation in MS
28. Vulnerable Carotid Plaques in Symptomatic Carotid Stenosis induced Intracranial Vasomotor Reactivity - 5<sup>th</sup> European Stroke Organisation Conference (ESOC)2019

#### Researches communicated at National & International Conferences:

1. 9<sup>th</sup> 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. 51<sup>st</sup> Annual Conference of Neurological Society of India under the aegis of NSI Kerala held at Kochin, 2002.
5. 10<sup>th</sup> Annual Conference of Indian Academy of Neurology 2002.
6. 53<sup>rd</sup> Annual Conference of Neurological Society of India held at INDORE 2004.
7. Xvth Annual Conference of Indian Academy of Neurology 2007.
8. IANCON 2012 20<sup>TH</sup> ANNUAL CONFERENCE OF Indian Academy of Neurology, Ahmedabad.
9. Bhattacharjee, Rohit, **D Khurana**(2015) Stroke Self-Management Rehabilitation Trial (SMARTODVD): Preliminary findings from an international, mult-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, Pulikotttil, 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 2<sup>nd</sup> 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 2<sup>nd</sup> 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 11<sup>th</sup> World Stroke Congress in Montreal, Canada.

18. E-presentation for abstract entitled “Vulnerable Carotid Plaques in Symptomatic Carotid Stenosis induced Intracranial Vasomotor Reactivity” at 5<sup>th</sup> European Stroke Organisation Conference (ESOC), Milan Italy - 22<sup>nd</sup> – 24<sup>th</sup> May 2019
19. E-presentation for abstract entitled “Efficacy of Mitoxantrone in Aggressive disease in North Indian MS patients” at 35<sup>th</sup> European Committee for Treatment and Research in Multiple Sclerosis –ECTRIMS and 24<sup>th</sup> Annual Conference of Rehabilitation in MS, Stockholm, Sweden - 11<sup>th</sup> – 13<sup>th</sup> 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 - 19<sup>th</sup> – 21<sup>st</sup> February 2020
21. 5<sup>th</sup> 2021 NCTH, 5<sup>TH</sup> NATIONAL CONFERENCE on Tobacco or health (Virtual).
22. Cochrane India Network, Introduction to Cochrane, Nov, 2021.
23. IANCON-2020-21, 28<sup>th</sup> Annual Conference of Indian Academy of neurology, Bengaluru.
24. ISNR 2021, 23<sup>rd</sup> Annual Conference of Indian Society of Neurology, Dec, 2021.
25. INSC 2022, 15<sup>th</sup> Indian Stroke Conference 2022, April, Mumbai.
26. ISCR, International Clinical Trials day, May, 2022.
27. State Conference on Diabetes Stroke, 11<sup>th</sup> June, 2022, HP.
28. AOCN-IANCON 2022, Annual Conference of Indian Academy of neurology, New Delhi.
29. St. John’s National Neurosonology Midterm Meet, 11<sup>th</sup> Dec, 2022

## **II. Clinical Trials/ Studies/ Registries:**

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

- i) 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)

- ii) 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)
- iii) 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
- iv) Edoxaban for Intracranial Hemorrhage Survivors with Atrial Fibrillation (ENRICH-AF)
- v) A single arm phase IV clinical trial to describe the safety and efficacy of Teriflunomide in patients with relapsing forms of Multiple Sclerosis (SAFE) – ongoing
- vi) 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**
- vii) 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**
- viii) An open label single arm multicentre extension study evaluating long term safety, tolerability and effectiveness of ofatumumab in subjects with relapsing multiple sclerosis – ongoing
- ix) 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 –**ongoing**
- x) Multi Centre Feasibility Pilot study: Safety and Feasibility Assessment of the NeuroPath™ IS System in Treatment of Acute Ischemic Stroke-A Pilot Study (Completed)

- xi) 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)
- xii) 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)
- xiii) A Randomised, double-blind, parallel-group, placebo-controlled study to evaluate the efficacy and safety of desmoteplase in acute ischemic stroke (Completed)
- xiv) INTERACT-2 Intensive Blood Pressure Reduction in acute Cerebral Hemorrhage trial (Completed)

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

- i) INSTRuCT – Establishment of the Indian Stroke Clinical Trial Network – ongoing
- ii) INSTRuCT phase II – Establishment of the Indian Stroke Clinical Trial Network – ongoing
- iii) SPRINT – Secondary prevention by Structured Semi-interactive Stroke Prevention Package in India (SPRINT India) study – ongoing
- iv) Cognitive Decline in Patients with Multiple Sclerosis: A cross sectional and Prospective Longitudinal Cohort Study
- v) 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)
- **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 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 also 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, AIIMS Patna, AIIMS Hyderabad
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
	Ph.D.	Guide	Group tele rehabilitation for stroke survivors GUTTS – a randomized clinical trial	ongoing
	Ph.D.	Guide	Microbiome signature in Indian Multiple Sclerosis	ongoing

1.	Ph.D.	Guide	Multimodal imaging based stroke risk score in patients with symptomatic carotid stenosis	Mar 2020
2.	Ph.D.	Guide	Medical application based post stroke care strategy: a randomized controlled trial	July 2019
3.	Ph.D.	Guide	Role of Pharmacogenetics, Pharmacodynamics and Adipokine levels on the antiplatelets effects of Clopidogrel in Ischemic Stroke Patients	Jun 2018
4.	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
	D.M.(Neurology)	Guide	To study the clinical and investigative profile of seronegative autoimmune encephalitis	ongoing

5.	D.M.(Neurology)	Guide	Evaluation of carotid plaque characteristics on contrast ultrasound and its correlation to Vasomotor reactivity with transcranial Doppler	Jun 2018
6	D.M. (Neurology)	Guide	Prevalence of Insulin resistance and dyslipidemia in MS and its correlation with disease activity.	Dec 2020
7.	D.M.(Neurology)	Guide	The effect of electronic private automatic branch exchange (EPABX) system based code stroke treatment.	Jan, 2017
8.	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
9.	D.M.(Neurology)	Guide	Prevalence of Patent Foramen Ovale in cryptogenic strokes of North Indian Population	Dec , 2013
10.	D.M.(Neurology)	Guide	Interictal cerebral & systemic endothelial dysfunction in patients of migraine	July, 2013

11.	D.M.(Neurology)	Guide	Validation of transcranial doppler to predict hematoma expansion in acute spontaneous non traumatic supratentorial intracerebral hemorrhage	Dec, 2011
12.	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
13.	D.M.(Neurology)	Guide	Ultrasonography versus nerve conduction studies in patients with carpal tunnel syndrome	Dec, 2006
14.	D.M.(Neurology)	Guide	Clinical outcome of cerebral venous thrombosis-A CT perfusion correlation	June,2006
15.	D.M.(Neurology)	Guide	A comparative study of Bell's palsy treatment with acyclovir & prednisolone compared with prednisolone alone: A randomised blinded clinical & electrophysiological study	Dec, 2005

	MD (Int. Med)	Guide	Expansion and implementation of telestroke network system in the Union Territory of Chandigarh - Stroke Net Chandigarh	ongoing
16.	MD (Int. Med)	Guide	Feasibility of Tele-Stroke network system in Union territory of Chandigarh- "STROKE NET CHANDIGARH"	Dec 2019
16.	MD (Int Med)	Guide	Role of FDG PET as biomarker in predicting treatment response in MS	June 2018
17.	MD (Int Med)	Guide	Incidence of ischemic changes in symptomatic carotid artery Stenosis with optimal medical management	June 2017
18.	MD (Int Med)	Guide	The influence of cerebral microbleeds on blood pressure control in acute intracerebral hemorrhage	July 2016
19.	M.D. Internal Medicine	Guide	Outcome of intravenous thrombolysis in acute cardio embolic stroke	July, 2015
20.	M.D. Internal Medicine	Guide	Outcome of first line therapy in multiple sclerosis in a tertiary care	June, 2014

			teaching hospital in North India	
21.	M.D. Anaesthesia	Guide	Perioperative factors influencing the occurrence of neurocognitive dysfunction in patients undergoing cardiopulmonary bypass	Dec, 2013
22.	Internal Medicine	Guide	Efficacy of anti platelets in the secondary prevention of ischemic stroke in young with and without prothrombotic state	Dec, 2011
23.	M.S.(General Surgery)	Co – Guide	Role of decompressive surgery in ischemic cerebro vascular accidents	Dec, 2007
24.	M.D. (Radiodiagnosis)	Co- Guide	To ascertain the relationship between diffusion weighted imaging findings and clinical outcome in cerebral venous thrombosis	Dec, 2006
25.	M.D. (Radiodiagnosis)	Co – Guide	Carotid artery disease: Comparision of multi-detector computed tomography angiography with digital subtraction angiography	June, 2006

26.	M.D. (Radiodiagnosis)	Co – Guide	A comparative study of cerebrovascular reserve and angiographic flow patterns in patients with symptomatic carotid occlusive disease	Dec, 2005
27.	M.D. Internal Medicine	Co – Guide	Duplex carotid ultrasound & transesophageal echo cardiographic study in acute stroke	June, 2005
28.	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
29.	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: -

Name of CME / Workshop	Dates	Role of Applicant as Faculty / Organiser
<b>MS Support Group Program – Move Strong 2022</b> to increase awareness about Multiple Sclerosis in collaboration with IGMC Shimla	30-31 Jul 2022 and 10 Sep 2022 (Shimla)	Organising Secretary
<b>Strike out Stroke- SoS '19-</b> 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	13 <sup>th</sup> – 17 <sup>th</sup> Nov 2019	Organising Secretary
<b>Strike out Stroke- SoS '18-</b> A public awareness campaign on stroke in association with NINE PGIMER – stroke support group program and rehabilitation counseling, poster competition on stroke awareness, education camp for schools	12 <sup>th</sup> – 15 <sup>th</sup> Nov 2018	Organising Secretary
<b>Strike out Stroke- SoS '17-</b> A public awareness campaign on stroke in association with NINE PGIMER and Panjab University, Chandigarh	15 <sup>th</sup> – 17 <sup>th</sup> Nov 2017	Organising Secretary
<b>MS Support Group Program</b>	Jun 2017	Organising Secretary
<b>MS Support Group Program – Move Strong 2016</b> to increase awareness about Multiple Sclerosis	5 <sup>th</sup> Jun 2016	Organising Secretary
<b>Strike out Stroke- SoS '15 -</b> A public awareness campaign on stroke in association with NINE PGIMER and Panjab University, Chandigarh	29 <sup>th</sup> Oct, 2015	Organising Secretary
<b>MS Support Group Program – Move Strong 2015</b> to increase awareness about Multiple Sclerosis	31 <sup>st</sup> May 2015	Organising Secretary
<b>Conducted 10<sup>th</sup> Annual Conference of Indian Stroke Association- INSC 2015</b> at Chandigarh	13 <sup>th</sup> -15 <sup>th</sup> March 2015	Organising Secretary



Strike out Stroke- SoS '14 - A public awareness campaign on stroke in association with NINE PGIMER and Panjab University, Chandigarh	29-31 <sup>st</sup> Oct 2014	Organising Secretary
Strike out Stroke- SoS '13 - A public awareness campaign on stroke in association with Chandigarh Police, NINE PGIMER and Panjab University, Chandigarh	29 <sup>th</sup> Oct - 1 <sup>st</sup> Nov 2013)	Organising Secretary
Strike out Stroke- SoS '12- Focusing on equipping the healthcare personnel with prompt stroke knowledge.	16 <sup>th</sup> Sep 2012	Organising Secretary
MS Support Group Program – Move Strong 2011 to increase awareness about Multiple Sclerosis		Organising Secretary
4 <sup>th</sup> Asia Pacific Congress Against Stroke, Neurosonology/TCD Workshop	29 <sup>th</sup> March 2007	Role: Faculty; conducted hands on workshop on carotid duplex and transcranial Doppler
1 <sup>st</sup> PGI - NUH(Singapore) Neurosonology Workshop	7 <sup>th</sup> - 8 <sup>th</sup> Dec. 2009	Role: Organizer and faculty. Conducted a hands on workshop on carotid Duplex and TCD jointly with Faculty from NUH
National Guidelines for Stroke Management at various level of health care delivery (WHO-NPDCS)	14 <sup>th</sup> Nov 2009	Role: Organiser 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 prothromboticstate 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

### 30. Workshops / Trainings attended

#### International:

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

#### National:

1. Introduction to Cochrane Workshop as Delegate on 8<sup>th</sup> – 9<sup>th</sup> Nov 2021, PGIMER, Chandigarh
2. Asia Pacific Endovascular Workshop on Carotid Interventions as faculty on 3<sup>rd</sup> – 4<sup>th</sup> Sep, 2015; Delhi.

3. Training session on Good Clinical Practice & ATTEND trial collaborators meeting on 13<sup>th</sup> Mar 2014; Thiruvananthapuram, Kerala.
4. One week course in Health Research Methods & Evidence Based Medicine; 18<sup>th</sup> – 23<sup>rd</sup> Nov 2013; St. John's Medical College & Research Institute, Bangalore
5. Acute Stroke training workshop; ACT NOW; 23<sup>rd</sup> July 2010, Delhi
6. Good Clinical practice workshop in stem cell research; 31<sup>st</sup> July-1<sup>st</sup> August; 2009; at Vellore.
7. Critical Care Neurology; 17<sup>th</sup>-19<sup>th</sup> 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; 25<sup>th</sup>- Feb 2005; New Delhi

#### 18. Speaker/Faculty/Lecture:-

##### International:

- 1 4<sup>th</sup> European stroke organization conference (ESOC 2018); 16<sup>th</sup>- 18<sup>th</sup> May, 2018; Gothenburg, Sweden
- 2 MS HCP Preceptor ship in UKM; 10<sup>th</sup> – 11<sup>th</sup> May, 2017; Munster, Germany as Faculty.
- 3 10<sup>th</sup> World Stroke Congress; 26<sup>th</sup> – 29<sup>th</sup> Oct, 2016; Hyderabad
- 4 9<sup>th</sup> World Stroke Congress; 22<sup>nd</sup> - 25<sup>th</sup> October 2014; Istanbul Turkey as Faculty.
- 5 46<sup>th</sup> Annual Academic Sessions 2013 held in collaboration with Ceylon College of physicians; 12<sup>th</sup> -14<sup>th</sup> 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; 29<sup>th</sup> Sep, 2011 as Faculty.

##### National:

##### Lectures in 2021-22 (from 10 May 2021)

1. 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.
2. Chairperson in the 23<sup>rd</sup> Annual Conference of Indian Society of Neuroradiology held at PGIMER, Chandigarh from 17<sup>th</sup> – 19<sup>th</sup> Dec 2021
3. Faculty at XIth Asia Pacific Stroke Conference 2021; 9th - 11th Dec 2021.
4. Faculty at 5<sup>th</sup> National Conference on Tobacco or Health (virtual); 25<sup>th</sup> – 27<sup>th</sup> Sep 2021.
5. Resource person in online course on Randomized Controlled Trials; 20<sup>th</sup> - 24<sup>th</sup> Sep 2021.
6. The Asia Oceanian Congress of Neurorehabilitation 2021 (AOCNR 2021) from 6-8th August 2021 (online) – 8<sup>th</sup> Aug 2021 Stroke Symposium Faculty (Chairperson).
7. Virtual Indian Stroke Association, Stroke Summer School 2021; 6-8 August, 2021.
8. Task Force Group meeting for Stroke registry/MSU projects, 24th June 2021.
9. Planning meeting of 5th National Conference on Tobacco or Health (NCTOH) on 22<sup>nd</sup> June 2021 at Zoom
10. 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
11. National Strategic Workshop – 12 May 2021 - WNCN on Global health and wellness initiative
12. Task Force Expert Group meeting, ICMR Headquarters, New Delhi - 2<sup>nd</sup> March 2020
13. International Conference on Neurological Disorders and Therapeutics, NIPER, Ahmedabad, Gujarat - 24<sup>th</sup> – 26<sup>th</sup> October 2019
14. Joint Scientific Conference of Association and Indian Epilepsy Society Indian Epilepsy, Ahmedabad, Gujarat - 18<sup>th</sup> Jan 2020
15. 27<sup>th</sup> Annual Conference of Indian Academy of Neurology (IANCON 2019), Hyderabad.
16. 6<sup>th</sup> Stroke Summer School 2019, Bangalore.
17. Indian Committee for Treatment and Research in MS –ICTRIMS 2019, Kolkata
18. 6<sup>th</sup> Annual Conference of the Society of Neurology- Neurosonology 2019, Kolkata.
19. 13<sup>th</sup> Indian National Stroke Conference 2019, 2019, Ahmedabad.

20. Annual National Conference of Indian Federation of Neuro Rehabilitation (IFNR), 2019, Mumbai.
21. 3<sup>rd</sup> Annual Conference of Telangana Neurosciences Society, 2019, Hyderabad.
22. ICCA Stroke 2019, AIIMS, New Delhi.
23. Brain and Heart Conference 2019, Kathmandu, Nepal.
24. Training of Doctors, Nurses and hospital staff to set up stroke unit in Haryana District Hospitals, 2018.
25. 26<sup>th</sup> Annual Conference of Indian Academy of Neurology – IANCON 2018
26. 8<sup>th</sup> Udaipur Neurosciences Course 2018, Udaipur
27. Establishment of Stroke Unit at DCH (National Program for Prevention and Control of Cancer, Diabetes, CVD and Stroke), September 2018, Punchkula.
28. 5<sup>th</sup> Stroke Summer School, September 2018, Goa
29. East MS Summit 2018, July 2018, Kolkata.
30. INSTRuCT Network Clinical Trial Development and Management Workshop, July 2018, ICMR Headquarters, New Delhi.
31. Indian Committee for Treatment and Research in MS –ICTRIMS 2018, Kochi
32. NIMHANS Annual Reviews in Practical Neurology (NIMHANS ARPrAN) July, 2018, NIMHANS, Bangalore.
33. KMC Stroke CME; June 2018, Manipal
34. Bangalore Neuroimmunology Update as faculty; 22<sup>nd</sup> Jun, 2018 – 23<sup>rd</sup> Jun, 2018; Bengluru.
35. 3<sup>rd</sup> Annual Congress of Society of Neurointerventions & Stroke CME; SNVICON 2018, Ahmedabad.
36. 5<sup>th</sup> Annual Conference of the Society of Neurosonology as faculty; 9<sup>th</sup> Jun, 2018 – 10<sup>th</sup> Jun, 2018; Hyderabad.
37. ICTRIMS 2018 as faculty; 14<sup>th</sup> Jul, 2018 – 15<sup>th</sup> Jul, 2018; Kochi
38. 3<sup>rd</sup> National undergraduate medical conference on Neurological diagnosis and analysis as Speaker; 11<sup>th</sup> – 12<sup>th</sup> Apr, 2018 ; DMC Ludhiana
39. 3<sup>rd</sup> Heart and Stroke Conclave 2018 as faculty; 1<sup>st</sup> Apr, 2018; Ahmedabad.
40. INSC 2018 as faculty; 16<sup>th</sup> Mar, 2018 – 18<sup>th</sup> Mar, 2018; New Delhi.

41. World Congress for Neurorehabilitation as faculty; 7<sup>th</sup> Feb, 2018 – 10<sup>th</sup> Feb, 2017; Mumbai.
42. Neuro Intervention Concept Elucidate as faculty; 15<sup>th</sup> Dec, 2017 – 16<sup>th</sup> Dec, 2017; Gurgaon.
43. Indo – US Science and Technology Forum (IUSSTF) as faculty; 1<sup>st</sup> Dec, 2017 – 3<sup>rd</sup> Dec, 2017; Delhi.
44. Neurology Update 2017 as speaker; 26<sup>th</sup> Nov, 2017; Patna.
45. Annual Academic Sessions of the Association of Sri Lankan Neurologist as Guest Speaker; 17<sup>th</sup> Nov, 2017 – 20<sup>th</sup> Nov, 2017; Colombo, Sri Lanka.
46. International Stroke and Cardiovascular Disease Symposium (ISCDS) and International Congress of Interventional Neurology (ICIN); 27<sup>th</sup> – 28<sup>th</sup> Oct, 2017; New Delhi.
47. Annual Stroke Masterclass 2017 as faculty; 23<sup>rd</sup> Sep, 2017; Dwarka, New Delhi.
48. 3<sup>rd</sup> JIPMER Annual Research Day as speaker; 11<sup>th</sup> Sep, 2017; Puducherry, Tamil Nadu.
49. 25<sup>th</sup> Annual Conference of Indian Academy of Neurology as faculty; 7<sup>th</sup> Sep, 2017 – 10<sup>th</sup> Sep, 2017; Chennai.
50. Stroke Summer School as speaker; 18<sup>th</sup> Aug, 2017 – 20<sup>th</sup> Aug, 2017; Mahabalipuram , Chennai.
51. ICTRIMS as faculty; 12<sup>th</sup> – 13<sup>th</sup> Aug, 2017; New Delhi.
52. India MS Summit 2017 as speaker; 1<sup>st</sup> July, 2017; Ahmedabad, India.
53. 2<sup>nd</sup> Annual Congress of Society of Neuro Vascular Interventions as faculty; 16<sup>th</sup> – 17<sup>th</sup> Jun, 2017; Bangalore, India.
54. Annual National Conference of Society of Neurosonology as faculty; 6<sup>th</sup> – 7<sup>th</sup> May, 2017; Coimbatore, India.
55. International Tropical Neurology Conference as speaker; 24<sup>th</sup> -26<sup>th</sup> Mar, 2017; Mumbai, India.
56. 11<sup>th</sup> Indian National Stroke Conference 2017 as faculty; 17<sup>th</sup> – 19<sup>th</sup> Mar, 2017; Amritsar, India.

57. Annual Neurovascular Intervention Update (ANVI 2016) as faculty; 2<sup>nd</sup> – 4<sup>th</sup> Dec, 2016; Gurgaon, India.
58. IANCON 2016 as Speaker; 10<sup>th</sup> – 14<sup>th</sup> Nov, 2016; Kolkata, India.
59. 10<sup>th</sup> World Stroke Congress as Speaker; 26<sup>th</sup> – 29<sup>th</sup> Oct, 2016; Hyderabad, India.
60. India MS Summit 2016 as speaker; 23<sup>rd</sup> and 24<sup>th</sup> July, 2016; Begumpet, Hyderabad, India.
61. 1<sup>st</sup> Annual Conference of Society of Neurovascular Interventions (SNVICON 2016) as Faculty; 10<sup>th</sup> – 12<sup>th</sup> June, 2016; Pune, India.
62. Neuro Update 2016 as Speaker; 22<sup>nd</sup> May, 2016; Ludhiana, India.
63. 3<sup>rd</sup> Annual National Conference of Society of Neurosonology (NEUROSONOCON 2016) as Speaker; 7<sup>th</sup> – 8<sup>th</sup> May, 2016, Zydus Hospitals, Ahmedabad, Gujarat, India.
64. 3<sup>rd</sup> Dr. R.R. Thukral Midterm International Medical Sciences Academy (IMSA) as Guest Speaker; 23<sup>rd</sup> April, 2016; Ludhiana, India.
65. 1<sup>st</sup> International Stroke Update SOS 2016 – Strike Out Stroke as Faculty; 9<sup>th</sup> – 10<sup>th</sup> Apr 2016; Chennai, India.
66. 7<sup>th</sup> Udaipur Conference on Stroke and Interventional Neurology 2016 as Speaker; 20<sup>th</sup> Mar 2016; Udaipur, Rajasthan, India
67. Stroke Update 2016 as Guest Speaker; 12<sup>th</sup> Mar 2016; AMRI Hospitals, Kolkata, India
68. 1<sup>st</sup> Heart and Stroke Conclave 2016 as Faculty; 24<sup>th</sup> Jan, 2016; Ahmedabad, India.
69. APICON 2016 as Speaker; 28<sup>th</sup> – 31<sup>st</sup> Jan, 2016; Hyderabad, India
70. APPI Global Health Summit Stroke Forum as Faculty and Panelist; 3<sup>rd</sup> Jan, 2016; New Delhi.
71. 1<sup>st</sup> Annual Congress of Society of Therapeutic Neuro Interventions (STNI) as Faculty; 4<sup>th</sup> – 6<sup>th</sup> Dec, 2015, Westin Gurgaon.
72. International Congress of Interventional Neurology 2015 as Speaker; 14<sup>th</sup> -15<sup>th</sup> Nov, 2015; Hyderabad, Telangana, India.
73. Annual National Conference of the Society of Neuro Sonology as Faculty; 2<sup>nd</sup> – 3<sup>rd</sup> May, 2015; Bangalore, India.
74. Brain and Heart 2015 as Faculty; 10<sup>th</sup> – 11<sup>th</sup> Oct, 2015; Chennai, India.

75. 23<sup>rd</sup> Annual Indian Academy of Neurology as Speaker; 1<sup>st</sup> – 4<sup>th</sup> Oct, 2015; Agra, India.
76. 3<sup>rd</sup> Summer School as Faculty; 14<sup>th</sup> – 16<sup>th</sup> August, 2015; Munnar Kerala.
77. Stroke Preceptorship Program, ISA Chapter as Chief Faculty; 28<sup>th</sup> August, 2015; Guwahati, Asam, India.
78. IAN Neu Con-North Conference as Speaker; 8<sup>th</sup> – 9<sup>th</sup> August, 2015; New Delhi, India.
79. Annual National Conference of the Society of Neuro Sonology as Speaker; 2<sup>nd</sup> -3<sup>rd</sup> May, 2015; Bangalore, India.
80. TROPICON 2015 as Speaker; 11<sup>th</sup> – 12<sup>th</sup> April, 2015; New Delhi.
81. Forum of Interactive Neurological Education (FINE) as Speaker; 19<sup>th</sup> – 21<sup>st</sup> Dec, 2014; Mumbai, India.
82. IANCON 2011 as Faculty; 6<sup>th</sup>-9<sup>th</sup> Nov 2014, Pune.
83. ISA Summer Stroke School as Faculty; 22<sup>nd</sup> -24<sup>th</sup> August 2014; Pune Maharashtra India.
84. 9<sup>th</sup> National Conference (ISACON) 2014 as Faculty; 14<sup>th</sup> – 16<sup>th</sup> Mar 2014; at Thiruvananthapuram, Kerala.
85. 69<sup>th</sup> Annual Conference of The APICON 2014 as Faculty; 20<sup>th</sup> – 23<sup>rd</sup> February 2014; Ludhiana Punjab India.
86. 62<sup>nd</sup> Annual Conference of Neurological Society of India (NSI) as Faculty; 12<sup>th</sup> – 15<sup>th</sup> December, 2013; Mumbai India.
87. 5<sup>th</sup> Udaipur Course – 2012 Stroke and Neurointervention as Speaker; 17<sup>th</sup> – 18<sup>th</sup> August 2013; GBH American Hospital Udaipur; Rajasthan India.
88. 1<sup>st</sup> International Conference of Heart & Stroke 2013 as Faculty/ Speaker; 8<sup>th</sup>- 10<sup>th</sup> November 2013; New Delhi India.
89. Annual Neurovascular Intervention (ANVI) update 2013 as Faculty/Speaker; 9<sup>th</sup> – 11<sup>th</sup> August 2013; Medanta – the Medicity; Gurgaon Haryana India.
90. 8<sup>th</sup> Edition of Neu Con 2013 as Speaker; 3<sup>rd</sup> – 4<sup>th</sup> August 2013, New Delhi India.
91. Stroke Symposium; 23-24<sup>th</sup> Nov, 2012, Bangalore.
92. Poster presentation in IANCON, 2012 ; 5-7<sup>th</sup> Oct, 2012 at Gujarat.
93. StrokeCon 2012 as Faculty; 9<sup>th</sup>-11<sup>th</sup> Mar 2012; Pune.
94. IANCON 2011 as Faculty; 22<sup>nd</sup>-25<sup>th</sup> Sept 2011, Pune



95. 59<sup>th</sup> annual Conference of the Neurological Society of India; 16<sup>th</sup>-19<sup>th</sup> Dec 2010; Jaipur India
96. Indo-US Stroke Conference; Dec 2010; PGIMER; Chandigarh India
97. European Neurological Society forum; 24-25<sup>th</sup> July 2010; Delhi.
98. ISA –ACT NOW Workshop on Stroke Faculty. New Delhi. 22<sup>nd</sup> July 2010
99. 5<sup>th</sup> National Congress of INDIAN STROKE ASSOCIATION (ISA 2010); 12<sup>th</sup>-15<sup>th</sup> March 2010; AIIMS; Delhi.
100. National Stroke CME 2009; 27<sup>th</sup>-28<sup>th</sup> June 2009; Pune
101. IANCON 2009; 17<sup>TH</sup> Annual Conference; 11-13<sup>th</sup> Sep 2009; Cochin
102. CME- Recent advances in Medical treatment & Rehabilitation; 3<sup>rd</sup> April 2009; CMC Ludhiana
103. 2<sup>nd</sup> National Congress of the ISA; 20<sup>th</sup>-21<sup>st</sup> Jan; 2007; Mumbai
104. Intracerebral Haemorrhage –newer prospective; Callosum 06; Annual Conference of Neurological society of India-Kerala Chapter; 25<sup>th</sup>-26<sup>th</sup> Feb 2006; Cochin

### Others

1. Assessor for Accreditation – DNB Neurology, Kovai Medical Centre from 5<sup>th</sup> Mar, 2018 – 6<sup>th</sup> Mar, 2018 at Coimbatore, Tamil Nadu.
2. External Expert for interview board of Assistant Professor, Neurology in Medical and Hospital on 2<sup>nd</sup> Aug, 2017 at Patna, Bihar.
3. External Medical Examiner for DM Neurology Practical Examination at Kerala University of Health Sciences from 28<sup>th</sup> Jul, 2017 - 29<sup>th</sup> Jul, 2017 at Thrissur, Kerala.
4. External examiner for DM Neurology Practical Examination at Guru Govind Singh Indraprastha University on 21<sup>st</sup> Jul, 2017 at New Delhi.
5. 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 World Stroke Congress 2022 held from October 26 – 30 2022 in Singapore.
2. Presentation on “Rituximab in treatment of Relapsing Multiple Sclerosis: Experience from a single center in North India” during the 7<sup>th</sup> annual Americas Committee for Treatment and Research in Multiple Sclerosis (ACTRIMS) Forum 2022 held from February 24-26 in West Palm Beach, Florida.
3. 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 - 19<sup>th</sup> – 21<sup>st</sup> February 2020
4. E-presentation for abstract entitled “Efficacy of Mitoxantrone in Aggressive disease in North Indian MS patients” at 35<sup>th</sup> European Committee for Treatment and Research in Multiple Sclerosis – ECTRIMS and 24<sup>th</sup> Annual Conference of Rehabilitation in MS, Stockholm, Sweden - 11<sup>th</sup> – 13<sup>th</sup> September 2019
5. E-presentation for abstract entitled “Vulnerable Carotid Plaques in Symptomatic Carotid Stenosis induced Intracranial Vasomotor Reactivity” at 5<sup>th</sup> European Stroke Organisation Conference (ESOC), Milan Italy - 22<sup>nd</sup> – 24<sup>th</sup> May 2019
6. 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 11<sup>th</sup> World Stroke Congress in Montreal, Canada
7. 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.
8. 23<sup>rd</sup> World Congress of Neurology; 16<sup>th</sup> – 21<sup>st</sup> 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 centre experience”.
9. 3<sup>rd</sup> European Stroke Organization Conference (ESOC); 16<sup>th</sup> – 18<sup>th</sup> 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”

10. International Stroke Conference, 22<sup>nd</sup> – 24<sup>th</sup> Feb, 2017 Houston, USA for presentation of paper entitled “The influence of Cerebral Microbleeds On Blood Pressure Control in Acute Intracerebral Haemorrhage”.
11. 2<sup>nd</sup> European Stroke Organisation Conference 2016; 10<sup>th</sup> – 12<sup>th</sup> May 2016 Barcelona; Spain presentation of paper entitled “ Clot length and outcome of Intravenous Thrombolysis in cardioembolic strokes”.
12. 22<sup>nd</sup> World Congress of Neurology; 31<sup>st</sup> – 5<sup>th</sup> Nov, 2015; Santiago, Chile for presentation of paper entitled “Temporal Trends of Intravenous Thrombolysis in Acute Ischemic Stroke Patients at a tertiary care centre in northern India”.
13. 67<sup>th</sup> Annual Meeting of AAN; 18<sup>th</sup> -25<sup>th</sup> April 2015; Washington DC, USA.
14. 66<sup>th</sup> Annual Meeting of AAN; 26<sup>th</sup> April – 3<sup>rd</sup> May 2014; Pennsylvania Convention Centre; Philadelphia USA.
15. 2<sup>nd</sup> International Conference on Heart & Brain; 27<sup>th</sup> Feb – 1<sup>st</sup> Mar 2014; Paris, France.
16. 22<sup>nd</sup> European Stroke Conference; 28<sup>th</sup>-31<sup>st</sup> May 2013; London; UK.
17. International Stroke Conference 2013; 5<sup>th</sup>-7<sup>th</sup> Feb 2013; Honolulu; Hawaii.
18. 8<sup>th</sup> World Stroke Congress; Oct 2012; Brazil
19. 17<sup>th</sup> Meeting of the European society of Neurosonology and Cerebral Haemodynamics; May 2012; Italy
20. 21<sup>st</sup> European Stroke Conference; May 2012; Portugal
21. International Stroke Conference : Honolulu,USA: Feb 2011
22. 19<sup>th</sup> European Stroke Conference; May 2010; Spain
23. International Stroke Conference 2010; Feb 2010; Texas
24. 61<sup>st</sup> Annual Meeting of AAN; May 2009; Washington
25. 10<sup>th</sup> International Symposium on Acute Stroke therapy; Sep 2008; Hungary
26. International stroke Conference 2008; Feb 2008; USA
27. International Stroke Conference 2007; Feb 2007; California
28. 18<sup>th</sup> World Congress of Neurology; Nov 2005; Australia
29. American Neurological Association; Sep 2005; San Diego; CA
30. 5<sup>th</sup> 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; 1<sup>st</sup>-3<sup>rd</sup> March, 2013 at Ludhiana, Punjab, India.
4. IANCON, 2012 ; 5-7<sup>th</sup> Oct, 2012 at Ahmedabad Gujarat (Platform Presentation).
5. 3<sup>rd</sup> National Congress of Indian Stroke Association; 8<sup>th</sup>-10<sup>th</sup> Feb; 2008; Amritsar
6. IANCON 2007 15<sup>TH</sup> ANNUAL Conference of Indian Academy of Neurology; 4<sup>th</sup>-7<sup>th</sup> Oct; 2007; Mumbai
7. Regional Asian Stroke Congress of ISA; 5<sup>th</sup>-8<sup>th</sup> January 2006; Chennai
8. Indo-US Symposium Cerebrovascular disorders; 12<sup>th</sup>-14<sup>th</sup> Dec 2005; Delhi
9. 53<sup>rd</sup> Annual Conference of neurological Society of India; 16<sup>th</sup>-19<sup>th</sup> Dec 2004; Indore
10. 10<sup>th</sup> Annual Conference of Indian Academy of Neurology; 27<sup>th</sup>-29<sup>th</sup> Oct 2002; Lucknow
11. 9<sup>th</sup> Annual Conference of Indian Academy of Neurology; 21<sup>st</sup>-23<sup>rd</sup> Sep; 2002; Delhi (Poster presentation)
12. Neuro electrophysiology Skills Workshop; 20<sup>th</sup> Sep; 2001; New Delhi (Paper presentation)
13. 8<sup>th</sup> Annual Conference of Indian Academy of Neurology; 22<sup>nd</sup>-24<sup>th</sup> Sep 2000; Madurai

## Miscellaneous:-

1. Investigator's Meeting of INSTRuCT Network and SPRINT India trial at Hyderabad; 3<sup>rd</sup> Aug, 2017.
2. Protocol COMB157G2301 Investigators' Meeting at Kowloon, Hong Kong; 14<sup>th</sup> Feb, 2017 – 16<sup>th</sup> Feb, 2017.
3. Visiting Faculty in Stroke and neurocritical Care group at San Francisco General Hospital and Trauma Center: 5<sup>th</sup> – 6<sup>th</sup> Nov 2015 at San Francisco, California, USA
4. 13<sup>th</sup> ESO Stroke Summer School; Sep 2009; France

5. Resource person in Autumn CME 2004; Guwahati  
PI, Faculty and Course Director in Indo US Comprehensive Stroke Center Training Program (IUSST) ;9<sup>th</sup>-11<sup>th</sup> Dec 2010

## 20. Contribution in Patient Care/ laboratory Services:-

I have provided care and also 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 also 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 time 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 6-8 hours. 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 a 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 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 Association of adipokines, drug metabolizer and platelet receptor (P2Y12) single nucleotide polymorphisms in Ischemic Stroke patients.
2. I have been working on a number of 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.

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

## 23. 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 of purchases of our department and am 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 plans:** Initiating telestroke program at PGIMER, connecting and training peripheral to carry out acute stroke management. A drip and ship program is 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 wills to initiate and lead. Change lies within ones own domain; Believing in your own ideas and having the courage to test them is what paves the way for a change.

A handwritten signature in blue ink, appearing to read 'Dheeraj Khurana', is centered on a white rectangular background.

(Dheeraj Khurana)  
15 Dec 2022

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