

# JAMSHID GHAJAR, MD, PhD, FACS

## CONTACT INFORMATION

### Palo Alto Office:

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BTF: Brain Trauma Foundation  
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## EDUCATION

## DEGREE/YEAR

1969-1973:	University of California, Los Angeles Bachelor's Degree, Biology	B.A., 1973
1973-1975:	University of California, Los Angeles, Master's Degree, Neurobiology	M.A., 1975
1975-1981:	Cornell University Medical College, MD/PhD Program	M.D., 1981
1975-1983:	Cornell University Graduate School of Medical Sciences: Major Field: Neurobiology & Behavior Minor Field: Biochemistry & Pharmacology	Ph.D., 1983

## GRADUATE MEDICAL TRAINING

1981-1982 Surgical Internship, The New York Hospital

1983-1987 Neurosurgery Residency, The New York Hospital

## **BOARD CERTIFICATION AND LICENSURE**

1982                    Medicine and Surgery, State of New York  
1993                    American Board of Neurological Surgeons  
1994                    Fellow American College of Surgeons

## **POSITIONS HELD**

1973-1975:            Mental Health Fellowship Trainee  
Brain Research Institute, University of California, Los Angeles

1979 -1981:           Research Assistant in Neurology  
Cornell University Medical College, New York

1981-1982:           Assistant Surgeon  
The New York Hospital-Cornell Medical Center

1982-1983:           Fellow in Neurology  
Cornell University Medical College, New York

1983 -1986:           Clinical Associate in Surgery  
Assistant Neurosurgeon, The New York Hospital-Cornell Medical Center

1986 -1987:           Senior Clinical Associate in Surgery  
Chief Resident Neurosurgeon, The New York Hospital-Cornell Medical Center

1987-1995:           Director of the Aitken Neurosurgery Laboratory  
Cornell University Medical College

1987-1993:           Assistant Attending Neurosurgeon  
The New York Hospital-Cornell Medical Center

1987-1993:           Assistant Professor of Surgery (Neurosurgery)  
Cornell University Medical College

1993 -2003:           Associate Attending Neurosurgeon  
The New York Hospital-Cornell Medical Center

1993 -1995:           Associate Professor of Surgery (Neurosurgery)  
Cornell University Medical College

1995 - 2003:           Clinical Associate Professor of Surgery (Neurosurgery)  
Cornell University Medical College

2003 - 2014           Attending Neurosurgeon  
The New York Presbyterian Hospital

2003 - 2014           Clinical Professor of Neurological Surgery  
Weill Cornell Medical College

1989 - 2014           Chief of Neurosurgery  
The Jamaica Hospital-Cornell Trauma Center

- 1995 - President, Brain Trauma Foundation
- 2014 - Clinical Professor of Neurosurgery  
Stanford University Medical Center
- 2014 - Director of the Stanford Concussion  
and Brain Health Center

## **RESEARCH INSTITUTIONS**

- 1970 -1972: **Neuropsychiatric Institute, U.C.L.A.**  
EEG and auditory evoked response analysis during sleep of normal and autistic children.
- 1972 -1973: **Biology Department, U.C.L.A.**  
Honors research studying mechanism of calcium activation of neurotransmitter release at the neuromuscular junction.
- 1973 -1975: **Brain Research Institute, U.C.L.A.**  
Master's degree thesis research in neuronal connectivity.
- 1975 -1983: **Laboratory of Cerebral Metabolism, Department of Neurology, Cornell University Medical College**  
Ph.D. thesis research in brain metabolism during hypoglycemia and recovery. Thesis advisers: Drs. Thomas Duffy and Fred Plum.
- 1987 - 1995: **Aitken Neurosurgery Laboratory, Cornell University Medical College**  
Principal Investigator, pathophysiology of traumatic brain injury.
- 1995 - **Brain Trauma Foundation**  
Mission: to improve the outcome of patients with traumatic brain injury.  
Program projects: Guidelines development, implementation and research (see below).
- 2014 - **Stanford University**  
To understand and improve brain health through clinical research on the spectrum of brain trauma from concussion to coma

## **PAST GRANT SUPPORT**

- 1/88 - 2/89 Principal Investigator, Peer reviewed program project that established a neurotrauma laboratory. Aitken Charitable Trust grant.
- 3/89 - 11/89 Principal Investigator,. Intracranial pressure and brain compliance changes following fluid percussion injury and hemorrhagic shock. Aitken Charitable Trust grant
- 12/89 - 11/90 Principal Investigator, Development of a human glial tissue culture barotrauma model and inflammation biology laboratory. Aitken Charitable Trust grant.
- 12/90 - 12/91 Principal Investigator, Parenchymal and tissue culture response to endotoxin. Aitken Charitable Trust grant.
- 1/92 - 1/93 Principal Investigator, IL-1, IL-6 and tumor necrosis factor production following traumatic brain injury. Aitken Charitable Trust grant.

12/91 - 12/92	Principal Investigator, Nationwide survey of Neurotrauma centers critical care practices. Brain Trauma Foundation.
1/93 - 1/94	Principal Investigator, Pathophysiology of post traumatic cerebral inflammation. Aitken Charitable Trust grant.
1/94 - 12/95	Principal Investigator, In vivo videomicroscopy of post traumatic leukocyte activation. Aitken Charitable Trust grant.
1/96 - 1/98	Principal Investigator, Identification of ventricular zone precursor cells and their potential role as progenitor neural cells. Aitken Charitable Trust grant.
5/97- 5/02	Principal Director, Physician education and development of a patient database for severe head injury in Eastern Europe. Soros-Open Society Foundation.
7/98 - 7/06	Principal Director, Develop and implement Guidelines for prehospital management of traumatic brain injury. U.S. Department of Transportation, National Highway Traffic Safety Administration.
11/01 - 11/03	Principal Investigator, Compliance with Intensive Care Guidelines and Outcomes Following Severe Brain Injury. The Jacob and Valeria Langeloth Foundation.
11/02 - 6/07	Principal Investigator, Cognitive and Neurobiological Research Consortium in Traumatic Brain Injury. The James S. McDonnell Foundation. Clinical research project studying neural connectivity in mild TBI from ER through long term outcome.
9/08 - 9/09	Principal Investigator, "Differentiating the Severity of Mild and Moderate Traumatic Brain Injury using High Temporal Resolution Attention Metrics and MRI-Diffusion Tensor Imaging "Telemedicine and Advanced Technology Research Center, U.S. Army Medical Research and Materiel Command.
01/09 - 01/12	Principal Investigator, Attention Dynamics Consortium in Traumatic Brain Injury. The James S. McDonnell Foundation. Clinical research project studying temporal and spatial neural network dynamics in mild TBI using MEG/EEG, fMRI and MRI-DTI.
10/11 - 2/12	Co – Principal Investigator. Subcontract, "Enygma Gym. Funded by DARPA, Department of Defense.
2/00 - 2013	Principal Director, New York State traumatic brain injury quality assurance program. Annual funding NYS Department of Health.

### **CURRENT GRANT SUPPORT**

9/08 - 9/14	Principal Investigator, "Eye-Tracking Rapid Attention Computation". TBI Advanced Technology – Therapeutic Development Award. Department of Defense (DOD). Awarded \$5.1 million.
10/11 - 10/15	Principal Investigator, "Concussion Definition Consortium – An Evidence Based Project". Department of Defense (DOD). Awarded \$2,241,745.
12/11 - 12/14	Principal Investigator, "EYE-TRAC Advance". Department of Defense (DOD). Testing 10,000 subjects with normal and post concussive eye tracking. Military and civilian athletes are included. Awarded \$20.5 million.
1/14 - 12/14	Principal Investigator, "Multi-Dimensional Model for Brain Trauma". Department of Defense (DOD). The goal is to develop a dynamic model for concussion, validate it on a retrospective dataset, and design a second study to validate it on a prospective dataset. Awarded \$471,525.

## **AWARDED PATENTS**

U.S. Patent Number 4,613,324	Method and Apparatus for Guiding Catheter into Ventricular System of Human Brain
U.S. Patent Number 4,784,634	Angled Hole Ventricular Catheter and Method of Making Same
U.S. Patent Number 4,821,716	Method and Apparatus for Perpendicular Perforation of the Cranium
U.S. Patent Number 4,931,056	Catheter Guide Apparatus for Perpendicular Insertion into a Cranium Orifice
U.S. Patent Number 4,970,926	Apparatus for making Angled Hole Ventricular Catheter
U.S. Patent Number 4,998,938	Removable Skull Mounted Work Platform and Method of Assembling Same
U.S. Patent Number 5,180,387	Angled Hole Catheter with Non-circular Bore
U.S. Patent Number 5,207,681	Drill Guide Apparatus for Perpendicular Perforation of the Cranium
U.S. Patent Number 6,206,885	Catheter Guide and Drill Guide Apparatus and method for Perpendicular Insertion into a Cranium Orifice
U. S. Patent Number 7,033,367	Slotted Catheter Guide for Perpendicular Insertion into a Cranium Orifice
U.S. Patent Number 7,384,399	Cognition and Motor Timing Diagnosis and Training System and Method
U.S. Patent Number 7,384,399	Method for Improving Cognition and Motor Timing – Divisional Patent
U.S. Patent Number 7,384,399	Cognition and Motor Timing Diagnosis Using Smooth Eye Pursuit Analysis – Continuation in Part Patent
U.S. Patent Number 7,849,525	Apparatus for Reducing Brain and Cervical Spine Injury due to Rotational Movement

## **PAST ADVISORY POSITIONS**

**American Association of Neurological Surgeons and Congress of Neurological Surgeons.**  
Technology in Neurocritical care committee and Guidelines Committee..

**American Association of Neurological Surgeons and Congress of Neurological Surgeons Joint Section, Neurotrauma & Critical Care.** Chief, Head Injury. 1994-1996.

**American Association of Neurological Surgeons and Congress of Neurological Surgeons Joint Section, Neurotrauma & Critical Care.** Chairman, Guidelines 2000-2002.

**U.S. Advisory Council on Trauma Care Systems.**  
Neurosurgery Advisor.

**Cornell University Medical College.**  
Financial Aid Committee and Student Advisor

**Pennsylvania Trauma System Foundation.**  
Neurosurgery Reviewer.

**National Institute of Neurological Disorders and Stroke.**  
Program Project Review A Committee.

**Langeloth Foundation**  
Grant Reviewer.

**Doris Duke Charitable Foundation**  
Ad-Hoc Reviewer.

### **JOURNAL REVIEWER**

**Journal of Critical Care Medicine**

**The Lancet**

**The Lancet Neurology**

**Journal of Critical Care Medicine**

**Journal of Trauma**

### **VISITING PROFESSORSHIP**

**Visiting Professor.** University of Washington, Seattle, Department of Neurosurgery. Jan. 26-28, 1993.

**Visiting Professor.** Montefiore Hospital, Montefiore, NY. Department of Neurosurgery. Nov. 22, 1997.

**Visiting Professor.** Yale University, New Haven, Conn. Department of Neurosurgery. Dec. 3, 1997.

**Visiting Professor.** Columbia University, College of Physicians and Surgeons, New York, NY.  
Department of Neurosurgery. Dec. 4, 1997.

**Visiting Professor.** University of Maryland, Baltimore, Shock Trauma Center. March 20, 1998.

**Visiting Professor.** North Shore University Hospital, Manhasset, NY, Trauma Center. April 14, 1998.

**Visiting Professor.** The Milton S. Hershey Medical Center, Hershey, PA, March 22, 2001.

**Visiting Fellow.** The Salk Institute, Computational Neurobiology Laboratory, University of California  
San Diego, August 2004.

**Visiting Professor.** University of California, San Diego. June 2008.

**Visiting Professor.** Middlebury College, Vermont. March 2013

### **SCIENCE DOCUMENTARIES & PRESS**

**The New Yorker:** "Conquering the Coma" by Malcolm Gladwell. July 8, 1996.

**PBS - NOVA,** "COMA", October 7, 1997.

**The Wall Street Journal:** "Getting the Best Care, And Fast, for Patients Suffering Head Injuries" by  
Tara Parker – Pope, March 23, 2001.

**PBS - NOVA**, "Science Now: The hidden toll of concussions and other common brain injuries", July 30, 2008.

**The Wall Street Journal**: "Pentagon Seeks Battlefield Device to Diagnose Brain Injury" by Theo Francis– Health Blog, April 17, 2008.

**CNN**: "Edge of Discovery", January 28, 2009.

**Los Angeles Times**: "Science of time: What makes our internal clock tick" by Melissa Healy, March 9, 2009.

**Fleet Reserve Association, FRA Today**: "Out of Sync, the effects of Traumatic Brain Injury (TBI) and The battle to recover" by Lauren Armstrong. July 2009.

**Bloomberg TV**: "Taking Stock with Pimm Fox, April 10, 2013.

## **MEMBERSHIPS, CERTIFICATION & AWARDS**

### **Membership**

American Association of Neurological Surgeons  
American College of Surgeons  
American Association for the Surgery of Trauma  
Association for the Scientific Study of Consciousness  
Society for the Neural Control of Movement

Congress of Neurological Surgeons  
Joint Section of Neurotrauma and Critical Care AANS/CNS  
Society for Neuroscience

Committee on Trauma  
American College of Surgeon

### **Certification**

Advanced Trauma Life Support (ATLS) Certified  
Advanced Trauma Life Support (ATLS) Instructor

### **Awards**

The Manhattan Award 1988  
Peter Canizaro Award AAST for Laboratory Research 1992  
New York State DOH Recognition Award 1996  
The Sheldon Berrol Clinical Service Award, Brain Injury Association 1998  
American Iranian Council Award 2001  
Honorary Police Surgeon, New York Police Department 2007  
Ellis Island Award 2013

## **CHAPTERS AND BOOKS**

**Ghajar J.B.G.**: A guide for ventricular catheter placement. **Annual Review of Hydrocephalus** 1986 V.4, Matsumoto S. Editor. Neuron publishing Co. Tokyo, Japan.

Hariri, R.J. and **Ghajar, J.B.G.**: The Application of Microsurgery to Laboratory Research. **Animal Experimentation and Research Surgery**, Edited by Gay, W. and Heavener, J., Academic Press, New York and Philadelphia, 1988.

**Ghajar J.B.G.**, Barie, B.S. and Hariri, R.J.: The Role of Leukotriene C4 in the development of Post-Traumatic Intracranial Hypertension. **Intracranial Pressure VIII**. Edited by C.J.J. Avezaat, J.H.M. van Eijndhoven, A.I.R. Mass and J.T.J. Tans. Springer-Verlag Berlin, Heidelberg New York, 479-483, 1993.

## **CHAPTERS AND BOOKS – continued**

**Ghajar, J.B.G.**, Hariri, R.J. and Patterson R.: Improved Outcome from Traumatic Coma Using Only Ventricular Cerebrospinal Fluid Drainage for Intracranial Pressure Control. **Advances in Neurosurgery**. Edited by R. Lorenz, M. Klingler, M. Brock. Springer-Verlag Berlin, Heidelberg, 21:173-177, 1993.

Hariri, R.J., Barie, B.S. and **Ghajar, J.B.G.**: Contribution of Increased Cerebral Blood Volume to Post-Traumatic Intracranial Hypertension. Edited by Nakamura N., Hashimoto, T., Yasue, M., **Recent Advances in Neurotraumatology**, Springer-Verlag, Tokyo, 289-292, 1993.

**Ghajar, J.B.G.**, Hariri, R.J., Schreiber, K., Ko, K., Bahramian, K., Iacono, L., and Patterson, R.: Improved Outcome from Traumatic Coma Using Ventricular CSF Drainage. Edited by Nakamura, N., Hashimoto, T., Yasue, M., **Recent Advances in Neurotraumatology**, Springer-Verlag, Tokyo, 327-330, 1993.

Hariri, R.J., **Ghajar, J.B.G.**: The Pathophysiologic Basis for the Management of Traumatic Brain Injury. **Textbook of Surgical Intensive Care**, Edited by Barie, P.S. and Shires, G.T., Lippincott, Philadelphia, Pa. Chapter 45:1193-1229, 1993.

**Ghajar, J.B.G.** and Hariri, R.J.: Management of Pediatric Head Injury. **Pediatric Clinics of North America**. Edited by Dimairo, A., WB Saunders Company, Philadelphia. Volume 39, Number 5, 1093-1125, October 1992.

**Ghajar, J.B.G.**: Variability of Neurotrauma Care in Hospitals. **Neurotrauma**. Edited by Narayan R.K., McGraw-Hill, New York. Chapter 70:1007-1017, 1996.

Greenwald, B.M., **Ghajar, J.B.G.**, Notterman, D.A.: Critical Care of Children with Acute Brain Injury. **Advances in Pediatrics** by Mosby Yearbook, Volume 42, 40-78, 1995.

Hartl, R., Ruge, M., Medary, M., Ghahremani, F., Arfors, K., **Ghajar, J.B.G.**: A New Model for the Investigation of the Cerebral Microcirculatory Dynamics after Traumatic Brain Injury. **6th World Congress for Microcirculation**. Edited by K. Messmer, W.M. Kubler. Monduzzi Publishing, Bologna (Italy) 691-695, 1996.

Bullock, R., Chesnut, R.M., Clifton, G., **Ghajar, J.B.G.**, Marion, D.W., Narayan, R.K., Newell, D.W., Pitts, L.W., Rosner, M.J., Wilberger, J.E.: Guidelines for the Management of Severe Head Injury. Brain Trauma Foundation, **AANS Press**, Chicago 1996.

**Ghajar, J.B.G.**, Brennan, C.: Acute Care of Gunshot Wounds to the Brain. **Traumatic Brain Injury**. Edited by Donald W. Marion. Thieme Publishing, New York 215-221, 1998.

**Ghajar, J.B.G.**, Mending the Injured Brain. **The Nova Reader, Science at the Turn of the Millennium**. Edited by Sandra Hackman. TV Books, L.L.C. Publishing, New York 82-85, 1999.

Bullock, R., Chesnut, R.M., Clifton, G., **Ghajar, J.B.G.**, Marion, D.W., Narayan, R.K., Newell, D.W., Pitts, L.W., Rosner, M.J., Wilberger, J.E.: **Management and Prognosis of Severe Traumatic Brain Injury**. Brain Trauma Foundation, New York, 2000.

Gabriel, E.J., **Ghajar, J.B.G.**, Jagoda, A., Pons, P.T., Scalea, T., Walters, B.C.: **Guidelines for Prehospital Management of Traumatic Brain Injury**. Brain Trauma Foundation, New York, 2000.

Hartl, R., Greenwald, B., **Ghajar, J.B.G.**: Acute head injuries in children. **Conn's Current Therapy**. Edited by Robert E. Rakel & Edward T. Bope. W.B. Saunders Company, Philadelphia, 971-975, 2002.

Hartl, R., **Ghajar, J.B.G.**: Acute Traumatic Brain Injury in Adults. **Conn's Current Therapy**. Edited by Robert E. Rakel & Edward T. Bope. W.B. Saunders Company, Philadelphia, 1004-1014, 2003.



## **CHAPTERS AND BOOKS – continued**

Hartl, R, **Ghajar, J.B.G.**: Neurosurgical Interventions, **Textbook of Traumatic Brain Injury**. American Psychiatric Publishing, Inc. Edited by Jonathan M. Silver, MD, Thomas W. McAllister, MD, Stuart C. Yudofsky, MD; Washington DC, London, England, 51-58, 2004.

Hartl, R, **Ghajar, J.B.G.**: Does Following the Recommendations in the Guidelines for the Management of Severe Traumatic Brain Injury Make a Difference in Patient Outcome? **Neurotrauma - Evidence-Based Answers to Common Questions**. Thieme, New York, NY, 120-123, 2004.

Bratton, S.L., Chesnut, R.M., **Ghajar, J.B.G.**, Hammond, F.F.M., Harris, O, Hartl, R. Manley, G.T., Nemecek, A., Newell, D.W., Rosenthal, G., Shutter, L., Schouten, J., Timmons, S.D., Ullman, J.S., Videtta, W., Wilberger, J., Wright, D.W.: **Guidelines for the Management of Severe Traumatic Brain Injury 3<sup>rd</sup> Edition**. Brain Trauma Foundation, New York 2007.

## **PUBLICATIONS**

Ornitz, E.M., Tanguay, P.E., Forsythe, A.B., De La Penna, A., and **Ghajar, J.B.G.**: The recovery cycle of the averaged auditory evoked response during sleep in normal children. **EEG and Clinical Neurophysiology** 37:113-122, 1974.

Ornitz, E.M., Forsythe, A.B., Tanguay, P.E., Ritvo, E.R., Pena, A., **Ghajar, J.B.G.**: The recovery cycle of the averaged auditory evoked response during sleep in autistic children. **EEG and Clinical Neurophysiology** 37:173-174, 1974.

**Ghajar, J.B.G.**, Plum, F., and Duffy, T.E.: Cerebral oxidative metabolism and blood flow during acute hypoglycemia and recovery in unanesthetized rats. **J. Neurochemistry** 38:397-409, 1982.

**Ghajar, J.B.G.**: Cerebral metabolism and blood flow during hypoglycemia and recovery. **Doctoral thesis**. 1983.

**Ghajar, J.B.G.**, Gibson, G.E., and Duffy, T.E.: Regional acetylcholine metabolism in brain during acute hypoglycemia and recovery. **J. Neurochemistry** 44:94-98, 1985.

**Ghajar, J.B.G.**: A guide for ventricular catheter placement. Technical note. **J. Neurosurgery** 63:985-986, 1985.

Hariri, R.J., **Ghajar, J.B.G.**, and Patterson, R.H.: The Effect of Age on Arterial Stenosis Following Microsurgical Repair, **Surgical Forum** 38:486-7, 1987.

Hariri, R.J., **Ghajar J.B.G.**, Hajjar, D.P., Patterson, R.H., Pomerantz, K.B., and Tomich, E.: Human Glial Cell Production of Lipoxygenase Generated Eicosanoids: A Potential Role in the Pathophysiology of Vascular Changes Following Traumatic Brain Injury. **Surgical Forum** 39:483-486, 1989.

Hariri, R.J., **Ghajar, J.B.G.**, Pomerantz, K., Hajjar, D.P., Tomich, E., Andrews, D.W., and Patterson, R.H.: Glial Cell Production of Eicosanoids Following Mechanical Injury, **Journal of Trauma** 29:1203-1210, 1989.

Fiamengo, S.A., Hariri, R.J., **Ghajar, J.B.G.**, Tomich, E., Emery, J.M., and Patterson R.H., The Effect of CVP on Brain Compliance: **Anesthesia and Analgesia** 68, S115, 1989.

Hariri, R.J., **Ghajar, J.B.G.**, Cohen, D.S., and Tan, K.S.: Cerebral Cortical Oxygenation Assessed by Reflectance Infrared Pulse Oximetry, **Stroke** 21:181-182, 1990.

Shepard, S.R., Hariri, R.J., Giannuzzi, R., Pomerantz, K., Hajjar, D., **Ghajar, J.B.G.**, Leukotriene Production by Human Glia, **Acta Neurochirurgica** S51:58-60, 1990.

## **PUBLICATIONS – continued**

Shepard, S.R., **Ghajar, J.B.G.**, Giannuzzi, R., Kupferman, S., and Hariri, R.J.: Fluid Percussion Barotrauma Chamber: A New In Vitro Model for Traumatic Brain Injury, **Journal of Surgical Research** 51:417-424,1991.

Redo, S. F., Ciccarelli, A., **Ghajar, J.B.G.**, Dinner, M.: Ventriculoatrial Shunt Utilizing the Azygos Vein, **Journal of Pediatric Surgery** 27:642-644,1992.

Hariri, R.J., Firlik, A. D., Shepard, S.R., Cohen, D. S., Barie, P.S., Emery, J.M., **Ghajar, J.B.G.**: Traumatic Brain Injury, Hemorrhagic Shock, and Fluid Resuscitation: Effects on Intracranial Pressure and Brain Compliance. **Journal of Neurosurgery** 79:421-427,1993.

Hariri, R.J., Barie, P.S., **Ghajar, J.B.G.**: Contribution of Increased Cerebral Blood Volume to Post-Traumatic Intracranial Hypertension. **Journal of Trauma** 35:88-96,1993.

Hariri, R.J., **Ghajar, J.B.G.**, Bahramian, K., Sharif, S., Barie, P. S.: Alterations in Intracranial Pressure and Cerebral Blood Volume in Endotoxemic Swine. **Surgical Gynecology & Obstetrics** 176:155-166,1993.

Sharif, S., Hariri, R. J., Chang, V., Barie, P. S., Wang, R.S., and **Ghajar, J.B.G.**: Human-Astrocyte Production of Tumor Necrosis Factor -  $\alpha$ , Interleukin -  $1\beta$ , and Interleukin-6 Following Exposure to Lipopolysaccharide Endotoxin. **Neurological Research** 15:109-112, April 1993.

Hariri, R.J., Chang, V. A., Barie, P. S., Wang, R.S., Sharif, S.F., **Ghajar, J.B.G.**: Traumatic Injury Induces Interleukin-6 Production by Human Astrocytes. **Brain Research** 636:139-142,1994.

Ko, K., **Ghajar, J.B.G.**, Hariri, R.J.: A Method for Monitoring Intracranial Temperature via Tunneled Ventricular Catheter. **Neurosurgery** 34:927-929,1994.

Hariri, R.J., Chang, V.A., Barie, P.S., **Ghajar, J.B.G.**: Traumatic Injury Induces Interleukin-6 Production by Human Astrocytes. 11th Annual Neurotrauma Symposium. **Journal of Neurotrauma** 11:112,1994.

Chang, V.A., Barie, P.S., **Ghajar, J.B.G.**, Hariri, R. J.: Altered Metabolism of Amyloid Precursor Protein Following Traumatic Brain Injury. 11th Annual Neurotrauma Symposium. **Journal of Neurotrauma** 11:104,1994.

**Ghajar, J.B.G.**, Hariri, J., Narayan, R.K., Iacono, L.A., Firlik, K., Patterson, R.H.: Survey of Critical Care Management of Comatose Head Injury Patients in the United States. **Critical Care Medicine** 23:560-567, 1995.

**Ghajar, J.B.G.** Intracranial Pressure Monitoring Techniques. **New Horizons** 3:395-399, 1995.

Itkis, Michael, **Ghajar, J.B.G.** Hariri, Robert J., The square-wave approach to impedance measurement of brain tissue water dynamics. **J. Neuroscience Methods** 59:237-244. 1995.

**Ghajar, J.B.G.**, Significant Lateralisation of Supratentorial ICP After Blunt Head Trauma. *Acta Neurochirurgica* 116:60-61, 1992. Letter to Editor: **Acta Neurochirurgica** (Wein) 120:98-99,1993.

Schreiber, K., Firlick, A. D., Hariri, R.J., **Ghajar, J.B.G.**, The Diagnosis and Initial Management of Head Injury. *NEJM* 327:1507-1511, 1992. Letter to Editor: **NEJM** 328:1124-1125,1993.

Hariri, R.J., Barie, P.S., **Ghajar, J.B.G.**, Traumatic Brain Injury, Shock and Fluid Resuscitation: Effects on Intracranial Pressure and Brain Compliance. Letter to Editor: **J. Neurosurgery** 81:963-964, 1994.

**Ghajar, J.B.G.**, Narayan R.K.: Survey of Critical Care Management of Comatose Head Injury Patients in the United States. Letter to Editor: **Critical Care Medicine** 24:897-898, 1996.

## **PUBLICATIONS – continued**

Bullock , R., Chesnut, R.M., Clifton, G., **Ghajar, J.B.G.**, Marion, D.W., Narayan R.K., Newell D.W., Pitts L.W., Rosner M.J., Wilberger J.E., Guidelines for the Management of Severe Head Injury. **J. Neurotrauma** S13, No. 11. November 1996.

Bullock , R., Chesnut, R.M., Clifton, G., **Ghajar, J.B.G.**, Marion, D.W., Narayan R.K., Newell D.W., Pitts L.W., Rosner M.J., Wilberger J.E., Guidelines for the Management of Severe Head Injury. **European Journal of Emergency Medicine** 2:109-127, 1996.

Hartl, R., Burrows T., Medary, M., Arfors, K., **Ghajar, J.B.G.**: Leukocyte Activation and Microcirculatory Alterations After Traumatic Brain Injury in Rabbits: An Intravital Microscopy Study. Abstract. **J. Neurosurgery** 84:368A-369A, 1996.

Hartl, R., Arfors, K., Ghahremani, F., **Ghajar, J.B.G.**: Hypertonic/Hyperoncotic Saline Attenuates Microcirculatory Disturbances after Traumatic Brain Injury. **Journal of Trauma** May Supplement, S2-S7, 1997.

Hartl, R., **Ghajar, J.B.G.**, Hochleuthner, H. Mauritz, W.: Hypertonic/hyperoncotic saline reliably reduces ICP in severely head-injured patients with intracranial hypertension. **Acta Neurochirurgica** S70: 126-129, 1997.

Hartl, R., Medary M., Ruge, F., Ghahremani, F., Arfors, K., **Ghajar, J.B.G.**: Blood-Brain-Barrier disruption is more pronounced at 1 hour as compared to 6 hours after traumatic brain injury: An intravital videomicroscopy study. **Acta Neurochirurgica** S 70:240-242, 1997.

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