How the Vietnam War, Communism, Russia/USSR (and other despots) Shaped Neuromuscular Disease in North America

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Kansas City, KS

KUMC Neurology Grand Rounds
Kansas City, KS
July 19th, 2019

Dr. Barohn served as a consultant for NuFactor and Momenta Pharmaceutical and receives research support from PTC Therapeutics, Ra Pharma, Orphazyme, Sanofi Genzyme, FDA OOPD, NIH, and PCORI.
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> 2,000 Neuromuscular Health Care Professionals
The Doctor Draft

• The Doctor Draft began during Korean War-early 50s
• Continued during Vietnam War 1965-1973
• Two year commitment to military armed forces
• Berry plan allowed doctors to defer service until after training

• Alternative to military: Public Health Service (PHS) as Commissioned Officer-very selective
• Could serve in PHS at various locations
  - PHS Hospitals in major cities
  - Indian Health Service Hospitals
  - National Communicable Disease Center (future CDC)
  - National Center for Urban and Industrial Health
  - NIH
NIH Associate Training Program-ATP

• Began in 1950s
• Clinical or Research or Staff Associates
• After completing at least two post doctoral years of training/residency
• Assigned to a Senior Staff Investigator/mentor
• Very competitive
• Associates chosen by the Institute Scientific Director
Number of Participants in NIH ATP

- 1960: #68 associates
- 1964-Gulf of Tonkin Resolution, authorizing president to take military action in Vietnam w/out congressional approval
- 1965: #178 associates
- 1970: #206 associates
- 1973: #229 associates
- Kissinger negotiated peace settlement in Paris
- 1974: #191
- 1976: #108
- 1980: #76

Text of Tonkin Gulf Resolution

WASHINGTON, Aug. 18 (AP)—Following is the text of the Gulf of Tonkin Resolution, approved by Congress on Aug. 7, 1964, and cited by President Johnson today as an indication of endorsement of his Vietnam policy:

Sec. 1. The Congress approves and supports the determination of the President, as commander in chief, to take all necessary measures to repel any armed attack against the forces of the United States and to prevent further aggression.

Sec. 2. The United States regards as vital to its national interest and to world peace the maintenance of international peace and security in Southeast Asia.

Committed to the Constitution and the Charter of the United Nations and in accordance with its obligations under the Southeast Asia Collective Defense Treaty, the United States is, therefore, prepared, as the President determines, to take all necessary steps, including the use of armed force, to assist any member or protocol state of the Southeast Asia Collective Defense Treaty requesting assistance in defense of its freedom.

The New York Times
7 August 1964

Kissinger negotiated peace settlement in Paris

- 1974: #191
- 1976: #108
- 1980: #76
NIH ATP

Less than 5% who applied got in heavily dominated by Eastern medical schools

Between 1963-1975
% Alumni Participated:

- Harvard Medical School - 12 to 20%
- U Michigan - .5 to 3.3%
- Northwestern - 0.5 to 3%
- UCSF - 0.4 to 2%

In 1965, % of incoming associates did their internship at:

- 9.2 Hopkins
- 7.8 MGH
- 6.5 Duke
- 4.6 Bellevue
- 4 Brigham
- 3.9 Boston City
- 3.3 Bronx Municipal
- 1.3 U. Michigan
- 1.3 U. Minnesota
NIH ATP

• Two years at NIH but some extended
• Some are still at NIH: Anthony Fauci was Clinical Associate 1968 to 1970
• Was a launching point for an academic research career as a physician
• They referred to themselves as the “Yellow Berets”, serving in the “Battle of Bethesda”
• Influenced most areas of medicine
G. Milton Shy, MD
1919-1967

• Born in Trinidad, Colorado on Sept. 30, 1919
• Medical School- University of Oregon
• Wounded US Army WW II as a doctor in Italy
• Neurology training in Queens Square in London & Montreal Neurological Institute-McGill Univ.
• 1951 Head of Neurology, University of Colorado
• Described patients with neurodegenerative disorder
  – Now called Shy-Drager Syndrome
  – Orthostasis, ataxia PD, MND
• 1953 to 1960 Intramural Clinical Director NINDB
• Son is Michael Shy M.D., Charcot-Marie Tooth (CMT) expert at the University of Iowa
G. Milton Shy, MD
1919-1967

• Muscle Disease interest at NINDB (NIH)
• Described:
  – mitochondrial myopathy
  – central core myopathy
  – nemaline myopathy
• EM of muscles
• Intracellular recordings from nerves and muscles
• Classified muscle disease by lesion site: muscle membrane, mitochondria, contractile proteins
• 1961 Chair Neurology, U of Penn
• 1967 Chair Neurology, Columbia / Prof NY Neurological Institute
• Died of MI 3 weeks after he arrived, on September 25th, 1967. He was only 48 years old
• Neuro house staff, Roger Rosenberg & Jerry Mendell tried to resuscitate him
A New Congenital Non-Progressive Myopathy

Central Core Myopathy

Nemaline Myopathy, A New Congenital Myopathy

Two Childhood Myopathies with Abnormal Mitochondria


Brain. 1963 Dec;86:793-810.

G. Milton Shy, MD
1919-1967

Students:

• Lewis P. Rowland (Penn/Columbia)
  -Famously left NIH when he refused to sign document related to finding communists
• W. King Engel (USC)
• Daniel Drachman (Johns Hopkins)
• David Drachman (UMass)
• Andrew G. Engel (Mayo)
• Donald Silberberg (Perelman SOM Univ. Penn)
• Stan Appel (Houston Methodist)
• Berch Griggs (Rochester)
W. King Engel, MD

- Born in St. Louis, MO; University City High School
- Chief Neurology NINDS Intramural 1963-1978; at NIH till 1981
- Revolutionized muscle histology & classification of muscle disease
- Prednisone in MG
- Acetazolamide in periodic paralysis
- RRF in mitochondrial myopathy
- Married to Valerie Askanas, MD, PhD
- 1981 – 2016 USC
- Now USC Professor Emeritus
- Retired with Dr. Askanas in Michigan
W. King Engel, MD
Trainees at NIH:
• Robert C. Griggs (Rochester NY)
• Michael Brooke (deceased)
  (Wash U)
• Jerry Mendell (OSU)
• Jack Warmolts (OSU/deceased)
• Steve Ringel (U of Colo.)
• John Griffin (Johns Hopkins/deceased)
• George Karpati (McGill/deceased)
• Gerald Fenichel (Vanderbilt)
• Tulio Bertorini (U of Tenn.)
• Dale McFarlin (NIH)
• Michel Fardeau (France)
• David Pleasure (U. Penn)
• John Morgan-Hughes (England)
• Barry Festoff (KU)
• Marinos Dalakas (Jefferson and Greece)
• Ben Brooks (North Carolina)
• John Whitaker (Univ. Alabama/deceased)
• Teepu Siddique (Northwestern)
• John Trotter (deceased)
• Bob Rolofs (deceased)
• Jerry Resnick (Connecticut)
• Walter Camp (Connecticut)
• Michel Reznik (Belgium)
• Leon Hogenhouis (Holland)
• Irwin Brody (deceased)
• Jose Carlo (Puerto Rico)
• Roger Kula (New York)
• Ted Norris (LA/deceased)
• Shalini Mahajan (Cedar Sinai, LA)
• Said Beydoun (USC)
• Jay Cook (LA)
• Shin Oh (Univ. Alabama)
• Bruce Adornato (Palo Alto)
The histographic analysis of human muscle biopsies with regard to fiber types

1. Adult male and female
2. Diseases of the upper and lower motor neuron
3. Myotonias, myasthenia gravis, and hypokalemic periodic paralysis

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Neurology, 1969
Mar;19(3):221-33
Neurology, 1969
April; 19(4): 378
Neurology. 1969
May;19(5):469-77
Neurology. 1969

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Neurology. 1969

N Engl J Med 1968; Mar 14; (278):582-586
ENGEL TRICHRONE STAINING
RAGGED RED FIBERS

Courtesy Drs Askanas and Engel
CIDD: Clinical Investigation of Duchenne Muscular Dystrophy
Griggs, Mendell, Fenichel, Moxley, Brooke

Arch Neurol. 1987;44:812-817

Arch Neurol. 1991;48:575-579


Landmark Paper

Neurology 1993;43:520-7

Other Books by Shy & K. Engel Students

Neuromuscular Evaluation and Treatment of Myopathies 1995

Neuromuscular Disorders 2008

Diagnosis and Management of Peripheral Nerve Disorders 2001

DeJong’s The Neurologic Examination 2019

Myology: Basic and Clinical 1994

Pathology of Skeletal Muscle 2001
Mentorship is the key to Career Success!
Escape from U.S.S.R. & Communism

Russian Revolutions:

• 1905: Failed
• 1914: Martial Law declared by Russian Empire
• 1917: Tsar Nicholas abdicates and Bolsheviks/ Vladimir Lenin takes power
• 1918: Tzar & family executed
• 1918-1922: Civil war culminating in formation of U.S.S.R.
Peter J. Dyck, MD

- PJ Dyck born 1927 between the Black and Caspian Seas in U.S.S.R.
- Father: Jacob Dyck, teacher and Mennonite minister
- 1929-Jacob’s name appeared on a list as an enemy of the people because of his faith
- Went to Moscow to get passports and then fled to Canada
- Lived in Saskatchewan in a sod hut
- Univ. of Saskatchewan BA/MD/internship/Int. Med./Neurology/Neuropathology
- Mayo Clinic Fellow and Staff
Peter J. Dyck, MD

- Single handedly developed field of nerve disease and pathology
- Sensory testing quantification
- Fellows too many to count

Teased Nerve Fibers

Toluidine blue stained plastic sections

Thermal discs
Landmark CIDP Publications

Ganciclovir Therapy

In Mayo Clinic Proceedings, 1975;50:621-637

Prednisone Improves Chronic Inflammatory Demyelinating Polyneuropathy

More Than No Treatment

Peter James Dyck, MD, Peter C. Olsson, PhD, Keith F. O'Brien, R.D., John D. Baringer, MD, Bethel Meld, MD, Thomas Smith, MD

Philips L. Armstrong, MD, and Anthony J. Winkle, MD

N Engl J Med

1986;314:461-465

A Plasma Exchange Versus Immune Globulin Infusion Trial in Chronic Inflammatory Demyelinating Polyneuropathy

Peter James Dyck, MD, William J. Leach, MD, Sue M. Kopek, Geraldine A. Mace, MD

Philip L. Armstrong, MD, Aaron A. Prystowsky, MD, Anthony J. Winkle, MD

Jennifer L. Kasten, MS, and Peter C. Olsson, PhD

Chronic inflammatory demyelinating polyneuropathy is a syndromic condition, causing considerable disability and even death. In controlled clinical trials, plasma exchange prevented or ameliorated axonopathies, but the effects of immune globulin therapy were small. We tested whether immune globulin prophylactically delayed the appearance of axonopathy.

Chronic inflammatory demyelinating polyneuropathy is a syndrome causing considerable disability and even death. The effects of immune globulin therapy were small. We tested whether immune globulin prophylactically delayed the appearance of axonopathy.

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Phenotypic and functional analysis of peripheral nerve biopsies show that chronic inflammatory demyelinating polyneuropathy is a syndrome causing considerable disability and even death. The effects of immune globulin therapy were small. We tested whether immune globulin prophylactically delayed the appearance of axonopathy.

Ann Neurol

1994;36:838-845

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George Karpati, MD and Escape from Hungary

USSR occupied Hungary since end of WW2

Hungarian Revolution/Uprising
• October 1956
• Led to Soviet crackdown and military occupation and repression
George Karpati, MD
B: 1934 in Debrecen, Hungary
D: MI-February 6, 2009 in Montreal, Canada

- Jewish... during WW2 at age 8 he was on his way in a cattle car to death camp.
  A “sleepy railway switch operator accidentally deflected George’s train to a forced labor camp”
  But his father was later killed in a concentration camp
- After the war, remained in Hungary, went to college/medical school
- In medical school at age 22 when U.S.S.R. crackdown occurred
- Fled to Canada. Canadians set up program for fleeing medical students
- Graduated med school from Dalhousie University in Halifax, Nova Scotia
- Neurology Residency at McGill Neurologic Institute, Montreal
- Post-graduate training at NIH under M. Shy and K. Engel
- Faculty at MNI 1967 until his death
George Karpati, MD

- Leader / innovator in muscle pathology
- Described IBM, adult onset polyglucosan body disease, giant axonal neuropathy, adult onset acid maltase deficiency, and myosin depletion myopathy

Inclusion body myositis:
A distinct variety of idiopathic inflammatory myopathy

Stefan Carpenter, MD, George Karpati, MD, Fred Hellman, MD, PhD, and Andrew Dossa, MD

The many uncertainties about idiopathic inflammatory myopathy (IBM) have recently been set aside by a detailed study of clinical and pathologic features in a series of 68 patients with a distinct syndrome. The results demonstrated a very high incidence of muscle biopsy features of myositis, and lack of response to immunosuppressive therapy. A control group of 84 patients included 45 patients with dermatomyositis, 18 with polymyositis, and 16 with other myopathies.

Materials and methods. Patients. The six patients described here table 1 are a part of a series of 1,500 patients whose muscle biopsies were studied by immunoperoxidase techniques in 150 cases, and others by the electron-microscope in 62 cases. The study was aimed at the identification of patients with idiopathic inflammatory myopathy (IBM), among muscle biopsy cases referred to the authors' laboratories. The control group included 45 patients with dermatomyositis, 18 with polymyositis, and 16 with other myopathies.

Both patients and control groups were of similar age, sex, and nutritional status. All patients were included in the study from 1977 to 1983.

Analysis of myositis. All patients had muscle biopsy studies by immunoperoxidase techniques in 150 cases, and others by the electron-microscope in 62 cases. The study was aimed at the identification of patients with idiopathic inflammatory myopathy (IBM), among muscle biopsy cases referred to the authors' laboratories. The control group included 45 patients with dermatomyositis, 18 with polymyositis, and 16 with other myopathies.

Research in myoblast transfer, stem cell therapy, viral mediated gene transfer and upregulation strategies for the homologous protein utrophin

• Discovered surface plasma membrane localization of dystrophin
Andrew Engel, MD
B: Budapest, Hungary, 1930

- Mother US Citizen/father a physician (internist/radiologist)
- After WW2 under Soviet occupation moved to USA in 1946
- McGill University undergrad and medical student in 1948 to 1955 as US Citizen
- PHS service at NIH in ATP program in late 1950s under Shy
- Became interested in Neurology/Neuromuscular Disease
- Finished neurology training at Mayo Clinic
- Fellow in neuropathology at Columbia NY and returned to Mayo
Major Discoveries on Pathophysiology of MG & CMS

- Complement mediation of MG
- Congenital myasthenic syndromes - physiology & genetics

Civil War and Former Yugoslavia 1991
Serbs (Pro-Russian-Former USSR) attack Bosnia and Croatia 1991-1994
US attacks Serbs 1994
Clinton-Vance-Owen Peace Plan 1995

2 NATO JETS BOMB THE SERBS BESIEGING A BOSNIAN HAVEN; U.S. WARNS OF MORE STRIKES

Shelling Declines
Raid by F-16′s Follows Failure to Pay Heed to a U.N. Warning

Serb attacks prompt warnings

Serb attacks prompt warnings of possible military intervention

Serb attacks prompt warnings of possible military intervention from abroad

Shelling Declines
Raid by F-16′s Follows Failure to Pay Heed to a U.N. Warning

The attack on a Serbian tank and a command center near Sarajevo was the first NATO air attack on Serbian ground forces in the Bosnian war. It was authorized after a strategic air strike by two F-16s — the bombing of a tank and a command center — would have been a precedent for the war. The attack was intended to be a signal to the Serbs that the war was not over. The Serbs, however, responded by increasing their attacks on civilians and shelling Sarajevo.

Sarajevo was relatively quiet. Repair workers set to work to restore utilities to the city and its surrounding areas. A senior fuel general warned the U.N. force in the area that it would return fire if the Serbs were attacked.

Serb artillery, meanwhile, pounded the town of Gradačac and Maglaj with “destruction of buildings,” particularly in non-Bosnian war victims, marking the first time the United Nations (UN) peacekeeping force in the area was engaged in combat.

The UN mission in Sarajevo is to be up to 100 people in the coming days, the UN general warned the UN force in the area that it would return fire if the Serbs were attacked.

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Loss, Mourning and Prayers for Peace in Bosnia and Herzegovina

At the Lion’s Cemetery in Sarajevo, a young couple comforted each other yesterday at the funeral of their one-year-old daughter. Bosnia’s President said he still supports an international peace plan, but added that the United Nations must be prepared to use force against Bosnian forces if the plan fails. The Bosnian leader rejected the peace plan again yesterday.

Serbs Again Reject Vance-Owen Peace Proposal

By JOHN DARSTON

BELGRADE, Yugoslavia, April 24 — Serbia’s President, Slobodan Milosevic, said yesterday that he would not back a United Nations peace plan for ending the civil war in Yugoslavia, which has killed 150,000 people.

Mr. Milosevic said in a televised address that the Vance-Owen plan, which was proposed by the United States and the European Union, was unacceptable.

"I will not accept the Vance-Owen plan," Mr. Milosevic said. "It has been proposed by those who want to destroy Serbia, and it is aimed at dividing Serbia into three parts."

The Vance-Owen plan, proposed last year, would create a federal state with three ethnic regions: a Serb republic, a Bosnian Muslim state and a Bosnian Croat state.

The plan was rejected by Serbia, Croatia and Bosnia-Herzegovina.

Balkan Update

In Sarajevo, the head of the United Nations mission in Bosnia and Herzegovina, Harri Rauta, a Finnish diplomat, said that the Vance-Owen plan was unacceptable to the Serbs and Croats.

"The Vance-Owen plan was drawn up by the United Nations in 1994 and was not accepted by the Serbs and Croats," Mr. Rauta said. "If the Vance-Owen plan is not accepted, the Serbs and Croats will not be able to implement it."

The Vance-Owen plan was rejected by the Serbs, Croats and Bosniaks.

Despite an announced cease-fire that is to take effect tomorrow, fighting between Bosnian Muslims and Croats continued to rage yesterday. The mother of a wounded 17-year-old Croat soldier kept vigil at his bedside in a makeshift hospital set up in a Roman Catholic Church in Njivice.
Dubravka Dodig, MD, FRCP C

- Born in Bosnia, Yugoslavia which descended into civil war in 1991
- Completed 3 years of medical school in Zagreb, Croatia
- Immigrated to Canada in 1994
- Obtained Honors Bachelor of Science at University of Waterloo
- Graduated medical school from McMaster University, Hamilton, Ontario
- Completed residency training in Neurology and Neuromuscular and Neurophysiology Fellowship at the Montreal Neurological Institute/ McGill University
- Mentors: Dr. George Karpati, Dr. John Stewart, Dr. Angela Genge
- Joined Dr. Bril’s group at the UHN/University of Toronto as a neuromuscular clinician and teacher in 2008
June Passer
B: 1907 in the Pale/Ukraine; D: 2008 in St. Louis, MO

- Seprifka, a dorf outside of Kiev
- Youngest of three sisters and older brother
- Father and brother emigrated to USA 1913; settled in St. Louis, MO
- Mother and sisters left Ukraine 1918; stories of Cossacks (White Russians) and Reds raiding the dorf
- 4 year circuitous route via Holland, Austro-Hungary, Romania, France (Paris) to get to Ellis Island, NY... difficult to get passage to US
- Joined father and brother in St. Louis, MO

The Pale of Settlement
Passer Family in U.S.S.R.
before immigration
<table>
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<tr>
<th>Name</th>
<th>Passenger ID</th>
<th>Frame</th>
<th>Line Number</th>
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<td>Passer, Sonia</td>
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<tr>
<td>Passer, Rosa</td>
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<td>Passer, Jennie</td>
<td>604903090033</td>
<td>896</td>
<td>15</td>
</tr>
</tbody>
</table>

**Arrival at Port of New York**

**Ship Name:** La Savoie

**Arrival Date:** July 11th, 1922

**Port of Departure:** Le Havre
Two Sons: Richard and Gary

- Eldest daughter, Benita, married Selwyn Barohn, 1953
- University City HS graduate—same year as King Engel
- Sel served in the US Air Force during Korean War

June Married Louis Spritz 1932
Richard J. Barohn, MD

- UMKC Medical School 1973 to 1980; draft ended 1973
- Joined USAF via Health Professions Scholarship program
- Active duty USAF 1980 to 1989; Reserves until 2000
- Retired at Lt. Col.
- Neurology Residency Wilford Hall USAF Medical Center, San Antonio, TX
- Neuromuscular Fellowship, Ohio State Univ. under Jerry Mendel, John Warmolts, John Kissel, Zarife Sahenk
- Long distance mentor: Robert (Berch) Griggs
- Academic Grandson of King Engel
Summary

1. Neuromuscular Medicine, and probably all academic medical fields were effected by the Vietnam War because of the PHS/NIH option

- Hundreds of PHS physicians at NIH because academic leaders throughout North America

- They trained many young neurologist who have become academic thought leaders over 2 generations

2. Europeans fled communistic countries to come to North America to go to school and become academic medical leaders, or to begin families that led to academic medical leaders

3. Mentorship is key to your career

4. How do we re-create the atmosphere at the NIH in the 1950’s-early 70’s that stimulated discovery and academic training-without another war?!
5. USA is a land of immigrants!!!

“Give me your tired, your poor,
Your huddled masses yearning to breathe free,
The wretched refuse of your teeming shore.
Send these, the homeless, tempest-tossed to me,
I lift my lamp beside the golden door!”

Dr. Omar Jawdat
University of Kansas Medical Center

Dr. Yessar Hussain
Austin Neuromuscular Center

Dr. Aziz Shaibani
Baylor College of Medicine
Dr. Barohn’s Mentors
AAN Meeting Boston April 2017

From Left: Kissel, Kolkin, Mendell, Barohn, Griggs

Amato, Mendell, Barohn
Dr. Barohn and his First Fellow at UTHSCSA (1989)  
(Dr. Carlayne Jackson)
Dr. Barohn's Clinical Neurophysiology and Neuromuscular Fellows in Department of Neurology at KUMC
Thank you

To request a copy of this lecture, please contact myself at rbarohn@kumc.edu or Amanda Sebok at asebok@kumc.edu
www.rrnmf.com
> 2,000 Neuromuscular Health Care Professionals