SCS

PINAL CORD SOCIETY

ISICon 2011

International Spine and Spinal Injuries Conference

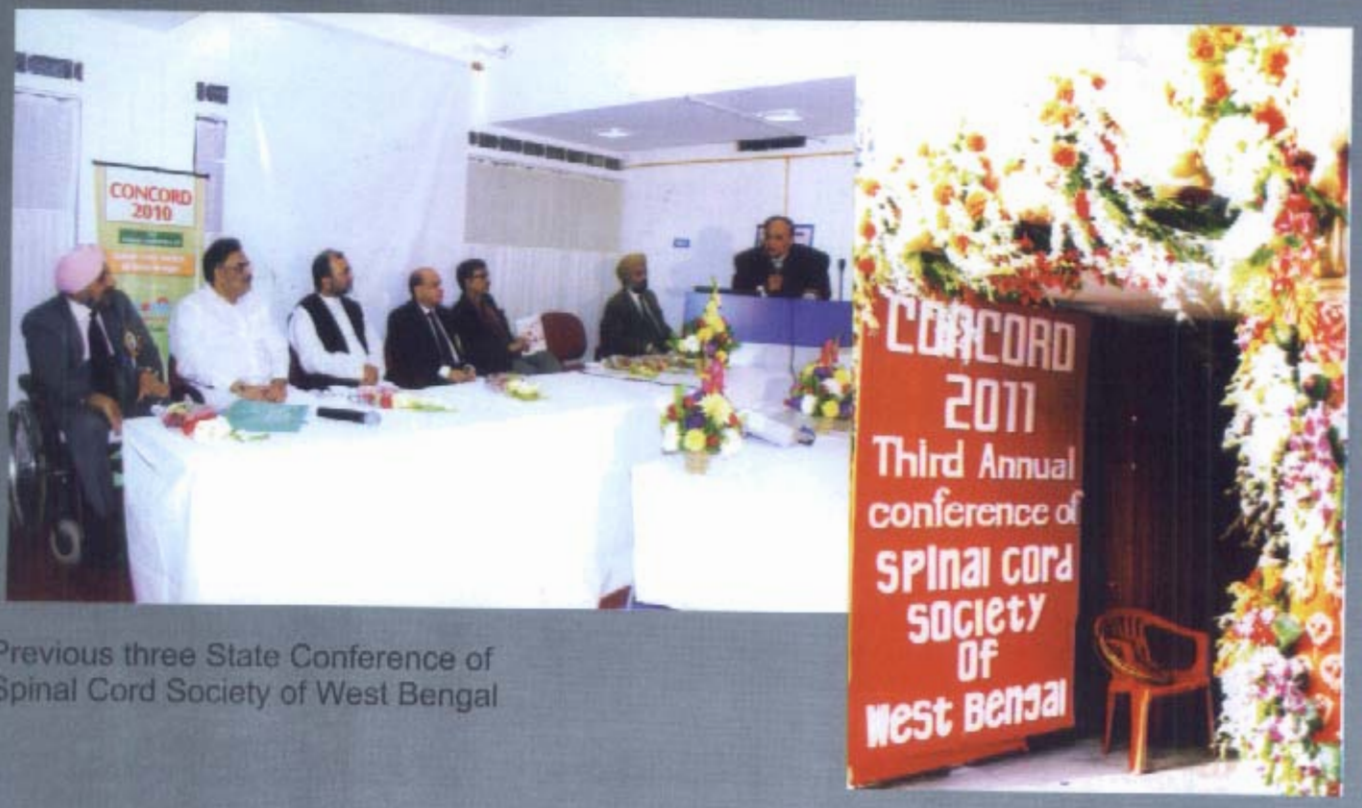
SPINAL CORD SOCIETY OF WEST BENGAL

Date : 4th to 6th November 2011 from 9 am onwards.

Conducted By :

Spinal Cord Society of West Bengal
Regd. No. : S/11/55787 of 2008 – 2009
Website : www.spinalcordwb.com
Contact No. – (0) 98300-41948, (0) 9831295148, (0) 9051603431

Venue : Saha Institute of Nuclear Physics, 1/AF, Bidhannagar, Kolkata - 700064, India.



Previous three State Conference of
Spinal Cord Society of West Bengal

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Venue : Saha Institute of Nuclear Physics, 1/AF, Bidhannagar, Kolkata - 700064, India.

Organizing Committee

Chief Patron :	Dr. (Prof.) A. K. Mukherjee
Chief Advisor :	Dr. H. S. Chhabra
Patrons :	Dr. (Prof) R. N. Roy, Dr. (Prof) H. K. Deb, Dr. (Prof) S. N. Bhattacharya, Dr. (Prof) M. K. Bhattacharya, Dr. (Prof) S. Ghorai, Dr. (Prof) P. Tripathy, Dr. (Prof) Phani Mondal, Dr. (Prof) B. C. Mohanti, Dr. (Prof) M. S. Ghosh, Dr. (Prof) Sunil Thakur, Dr. (Prof) R. N. Bhattacharya, Dr. (Prof) Partha Saha, Dr. (Prof) Alok Khan, Dr. (Prof) Swapan Mondal, Dr. (Prof) Rupen Gupta Dr. (Prof) Ambar Ballav, Dr. Ashim Kumar Biswas, Dr. (Prof) B. K. Chowdhury Dr. Ratnesh Kumar, Dr. (Prof) Chinmay Dey, Dr. Biplab Acharya.
Chairperson :	Dr. (Prof.) S. N. Ghosh
Vice Chaipersons :	Dr. G. K. Prusty, Dr. Sandip Chatterjee, Dr. Kunal Sengupta
President :	Dr. Abrar Ahmed
Vice Presidents :	Dr. Suniti Saha, Dr. B. K. Singhania
Secretary :	Dr. M. M. Ghatak
Joint Secretaries :	Dr. Swapan Mishra, Dr. H. A. Shah
Assistant Secretaries :	Dr. Sandip Ghosh, Dr. K. M. Das, Dr. Amlan Mondal
Treasurer :	Dr. (Prof.) P. Deb
Joint Treasurer :	Dr. Tapan Patra
Scientific Committee :	Dr. Sudipto Chatterjee, Dr. Soumyajit Basu, Dr. Rajesh Pramanik, Dr. Amitava Chanda

सौगत राय
Saugata Roy

राज्य मंत्री
MINISTER OF STATE
शहरी विकास मंत्रालय
MINISTRY OF URBAN DEVELOPMENT
भारत सरकार
GOVERNMENT OF INDIA
निर्माण भवन, नई दिल्ली - 110011
NIRMAN BHAVAN, NEW DELHI-110011

November 2, 2011

MESSAGE

I am happy to learn that first International Conference on Spinal injuries, Spinal Pathologies and their management is being organized by Spinal Cord Society, West Bengal in collaboration with Indian Spinal Injury Centre, Vasant Kunj, New Delhi from 4th to 6th November, 2011 at Saha Institute of Nuclear Physics, 1/AF, Bidhan Nagar, Kolkata – 700 064. Delegates from different parts of the Globe will attend the programme.

The conference is immensely useful as this will help people to aware about the devastating outcome of spinal injuries what may finally lead to paralysis. Road accidents are common phenomenon. People mostly youngsters are getting handicapped due to road traffic accidents everyday. Treatment and rehabilitation facilities for the handicapped caused by spinal injuries are not adequate in our country due to lack of proper infrastructure. I hope, Spinal Cord Society, West Bengal will fill up the vacuum by providing trained medical expertise and proper treatment in the State. I heartily welcome their endeavour.

I extend my best wishes to all the participants in the conference wishing as well the conference (ISSICON 2011) a grand success.

[Prof. Saugata Roy]

Dr.M.M.Ghatak,
Secretary,
ISSICON-2011,
Kolkata

PHONE : 011-23063898 / 23061999 FAX : 011-23061103

Message

I am glad that ISSICON 2011 will be held in Kolkata on November 2011. The Conference with a great cultural heritage has produced five Nobel Laureates of India.

It will be a great opportunity for persons with scientific temper to interact and have the taste of ancient heritage.

I wish the Conference a great success.

(Dr. A. K. Mukherjee)
Director General, ISIC, New Delhi
& President - SCS

Dear Delegates,

As chairperson of the organizing committee of the International spine and spinal injury conference (ISSICON 2011). I welcome you all to this ISSICON 2011 in Kolkata.

It is our proud privilege to host this prestigious meeting in Kolkata and the organizing committee has strived hard to make this event enjoyable to everyone. I know all of us will have the opportunity in Kolkata, not only to advance our knowledge about the spinal injuries and spinal problems but to renew friendships and to make new friendships, which is an important part of our conference.

We have an extensive scientific programme. We also have two workshops for the benefit of our young participants.

Wishing you all an enjoyable meeting.

Dr. (Prof.) S. N. Ghosh.

Chairman, Organizing Committee, ISSICON 2011 Prof. & Dept of Newtosurgery, Bangur Institute of Neqrology, Kolkata.

ISSICON has proved to be an effective forum for the spread of knowledge of the care of the spinal cord injured since it first inception. Over the years it has led the way in providing the opportunity for professionals in the field to meet and exchange knowledge and experience both through the scientific program and through the more informal discussions between sessions. The network so created has done much to advance the quality of care of the spinal cord injured in India. The meeting in Kolkata this year looks to be one that will further advance the standard of care of this group of people.

Health professionals in India are to be commended on the enormous efforts that they have put in to the development of spinal cord injuries throughout the subcontinent. Much of this has been done without pay but with genuine concern for this situation that this group of people find themselves in.

The opening of new spinal cord services and the development of spinal cord services already established have led to significant improvements in prevention and spinal cord injury management. Much remains to be done and the goal of the best treatment always brings us to the top of a mountain from which we see the next high peak to be scaled. ISSICON 2011 is the top of a mountain that will enable us to view the way forward into the future as we see the high ground ahead.

It is a privilege to be associated with the conference and I wish the organisers and all delegates a successful and fruitful meeting.

Dr. Douglas Brown
President (Elect), ISICON

Management of spinal ailments has been revolutionized in the last few decades. We can understand and hence manage these ailments much better. However the long list of unanswered questions and controversies suggests that a lot of work still needs to be done. Thus a lot of research is being done across the globe resulting in rapid advances in the management of spinal ailments.

There is a strong need to disseminate information about these recent advances. It is with this in mind that the "Spinal Cord Society" organizes "International Spine and Spinal Injuries Conference" (ISSICON) each year. Deliberations amongst eminent faculty members from around the globe and from around India provides an excellent forum for trying to achieve these objectives. In addition organising the conference in different parts of India helps to sensitise the medical and paramedical professionals, policy makers and community of that region on the need for setting up services for Spinal Cord Injured.

We are happy that this year, West Bengal Spinal Cord Society has taken the initiative in organisig the conference. We are sure that with the excellent team effort being put in by them, it will be a very successful conference.

We welcome you all to ISSICON 2011 and hope that we will be able to live upto your expectations.

With regards,

Harvinder Singh

Dr. H.S. Chhabra,
Chief of Spine Service &
Medical Director
Secretary, Spinal Cord Society
Chairman – Education Committee (ISCoS)
Executive Member, Asian Spinal Cord Networking
Secretary, Association of Spine Surgeons of India

It gives me immense pleasure and satisfaction to be a part of this prestigious educational event being organised for the first time in eastern india. i am confident that the series of educational events and exchange of views amongst national and international experts ,local faculty and delegates will be of immense help in forming guidlines for latest management of spinal problems and rehabilitaion, keeping in view the our local resources and minimising the financial burden while utilising and modifying latest technological advantages for the benefit of underpriviledged population of this part of the world who are amongst the most common sufferer from these problems and lack the access to the latest advancements in management of these complicated problems.

Dr Abrar Ahmed
President ISSICON 20011
Senior consultant spine surgeon
Apollo Gleneagles hospitals
Kolkata
ISSICON 2011

We are very happy that spinal cord society is going to hold ISSICON 2011 in this city of joy. We as joint scientific committee chairpersons, hope that this conference will be a major success and all the participants and the delegates including a post graduate trainees and post doctoral trainees will enjoy the scientific flavour with updated scientific views and discussions as applied to spinal and neurospinal subjects.

Dr. Sudipto Chatterjee & Dr. Soumajit Basu
Jt. Chairman, Sc. Committee, ISSICON

Secretaries Report's

ISSICON 2011 is the official 11th annual conference of spinal cord society (India). Kolkata and spinal cord society of West Bengal is fortunate to host this prestigious International conference, where this state really can find grand opportunity to interact and discuss with many International & National level expert of spinal science.

The era when a huge burden of spinal injury patients is knocking the door of health care service sectors with high expectations of updated solutions and side by side an enormous growth of scientific researches have modified the mode of management for such conditions, this conference in Kolkata is really creating the grand scope to improve and update our knowledge and orientation. The International and National faculties who are glorifying this occasion are not only of high stature but also of high knowledge and dedicated to their sincere services – we are lucky indeed.

Spinal Cord Society of West Bengal was keen towards organizing ISSICON since the inception of Spinal Cord Society of West Bengal in 2008. Three state conferences (CONCORD 2009, 2010, 2011) was successfully implemented and managed by its skilled personality's structures and the venture of ISSICON was taken this year. Dr. (Prof.) S. N. Ghosh, the chairperson has masterly guided every step, Dr. Abrar Ahmed like 'Messy' of Barcelona created good impact, Dr. H. S. Chhabra & Dr. A. K. Mukherjee through their constant remote radio inspired and guided me. Through the constant efforts in last six months, I realized people are there to share ideas, guide one but it becomes the biggest asset when someone puts real sincere efforts in all practical fields – I was lucky to get Dr. Sudipta Chatterjee, Shrabani Bhattacharya & Amit Biswas to assist me. I also must mention, Dr. Sandip Ghosh, Dr. Pulak Deb, Dr. T. K Patra who helped a lot in their respective duties.

As the organizing secretary of ISSICON 2011, I am privileged to thank and pray my regards to all International, National & local faculties and delegates, with whom, for whom and by whom only, this ISSICON would be clarified and enlightened.

We seek your co-operation and earnest support to make this conference a good milestone of development of spinal cord science in India and West Bengal too. Looking forward for a good and healthy spine of our Spinal Cord Society (India) & Spinal Cord Society West Bengal.

With regards.

Dr. M. M. Ghatak, MD (PMR)

Organizing Secretary, ISSICON 2011,
Secretary, Spinal Cord Society of West Bengal,
Life member, Spinal Cord Society (India),
Incharge, Medical Rehabilitation Center, Kolkata.

Local Faculties

Dr. R. N. Roy
Dr. M. K. Bhattacharya
Dr. Phani Mandal
Dr. S. N. Banerjee
Dr. P. Tripathy
Dr. S. P. Gharai
Dr. S. N. Ghosh
Dr. Partha Saha
Dr. Sailendranath Bhattacharya
Dr. Ratnesh Kumar
Dr. M. S. Ghosh
Dr. H. K. Deb
Dr. Chinmoy De
Dr. B. K. Chowdhury
Dr. A. Ballav
Dr. H. Biswas
Dr. Kunal Sengupta
Dr. Saumyajit Basu
Dr. Abrar Ahmed
Dr. Kiran Mukherjee
Dr. G. G. Kar
Dr. Pulak Deb
Dr. B. C. Mohanty
Dr. S. Ghosh
Dr. S. Saha
Dr. Swapan Mondal
Dr. Rupen Gupta
Dr. Sudipta Chatterjee
Dr. K. S. Chakraborty
2Dr. B. K. Singhania
Dr. A. Chanda
Dr. Sandip Chatterjee
A. K. Palit
Dr. D. Khatua
Dr. P. P. Pan
Dr. P. P. Das
Dr. S. Iswarari
Dr. K. M. Das
Dr. R. K. Ghatak
Dr. S. Mishra
Dr. R. K. Jhalani
Dr. M. M. Biswas
Dr. R. Pramanik
Dr. D. Das

National & International Faculties

Dr. Douglas Brown
Dr. Stephen Muldoon
Dr. Patrick Kluger
Dr. Wee Fu Tan
A / Prof. Tan Seang Beng
Prof. Manfred Stohrer
Dr. Ziad M. Al Zoubi
Dr. Hans Joseph Erli
Dr. A. K. Mukherjee
Dr. H. S. Chhabra
Dr. P. S. Ramani
Dr. Shankar Acharya
Dr. K. Das
Dr. S. L. Yadav ,
Dr. Mrinal Joshi
Dr. Ujjwal Debnath
Dr. H. N. Bajaj x"
Dr. Divya Parashar
Dr. Arvind Jaiswal
Dr. Roop Singh
Dr. George Tharion
Dr. Vijay Sharma
Shivjeet Singh Raghav
Dr. Gautam Zaveri
Dr. G. P. Dureja
Nekram Upadhyay
Chitra Kataria
Ruby Aikat

Venue : Apollo Hospital

Hall A

Basic Spine Workshop

4th November

0900 hrs – 0920 hrs	TLIF-Indications & Techniques	Dr. Ziad Al Zoubi
0920 hrs – 0930hrs	Video- TLIF	Dr. Gautam Zaveri
0930 hrs – 0940 hrs	Discussion	
0940 hrs – 1010 hrs	Lateral mass screw fixation in spine - indications & techniques	Dr. Hans Joseph Erli
1010 hrs – 1020 hrs	Video Demonstration of lateral mass screw fixation	Dr. Sandip Banerjee
1020 hrs – 1030 hrs	Discussion	
1030 hrs – 1050 hrs	Injections in spine, Indications & Techniques	Dr. Ankur Nanda
1050 hrs – 1100 hrs	Discussion	
1100 hrs – 1130 hrs	Tea Break	
1130 hrs – 1150 hrs	Thoracic pedicle screw fixation - Indications & Techniques	Dr. Patrick Kluger
1150 hrs – 1200 hrs	Video Demonstration of thoracic pedicle screw fixation	Dr. Kalidutta Das
1200 hrs – 1210 hrs	Discussion	
1210 hrs – 1310 hrs	Demonstration of TLIF on Bone model	Dr. Gautam Zaveri Dr. Ziad Al Zoubi
	Hands on workshop on bone model -TLIF	
1310 hrs – 1410 hrs	Lunch	
1410 hrs – 1510 hrs	Bone model Demonstration of lateral mass crew fixation	Dr. Hans Joseph Erli, Dr. Banerjee
	Hands on workshop on bone model –Lateral mass screw fixation	
1510 hrs – 1610 hrs	Demonstration of Thoracic Pedicle Screw Fixation on bone model	Dr. Patrick Kluger, Dr. Gururaj Sangondimath
	Hands on workshop on bone model –Thoracic Pedicle Screw Fixation	

Venue: Apollo Hospital

Hall B

0900 hrs – 0915 hrs	Demonstration on bone model - C1-C2 fixation	Dr. Wee Fu Tan, Dr. Saumyajit Basu
0915 hrs – 1000hrs	Hands on workshop on bone models – C1 - C2 fixation	
1000 hrs – 1015 hrs	Demonstration on bone model - Spinal Osteotomies	Dr. Gautam Zaveri, Dr. Arvind Jayaswal Dr. Abrar
1015 hrs – 1100 hrs	Hands on workshop on bone model – Spinal Osteotomies	
1100 hrs – 1115 hrs	Tea Break	
1115 hrs – 1200 hrs	Demonstration on bone model Percutaneous Pedicle Screw Fixation	Prof. S B Tan
1200 hrs – 1300 hrs	Round Table Discussions – Atlantoaxial instability (infection, anomlies), indications of fixation, types of fixation, surgical tips, complications	Faculty – Dr. Saumyajit Basu, Dr. Wee Fu Tan Dr. Ankur Nanda
1300 hrs – 1400 hrs	Lunch	
1400 hrs – 1500 hrs	Round Table Discussions - Spinal Osteotomies - indications, which type, basic principles and complications	Faculty – Dr. Gautam Zaveri Dr. Arvind Jayaswal
1500 hrs – 1600 hrs	Round Table Discussions - Minimally invasive TLIF, indications, surgical tips intra op challenges, complications & out come	Faculty – Dr. S B Tan

Advanced Spine Workshop

ISSICON 2011

Rehab Workshop

4th November, 2011 (Friday)

Venue – **Medical Rehabilitation Center (TRA General Hospital); 7, Dr. Biresh Guha Street, Kolkata – 700017.**

0900 hrs – 0915 hrs Tea

0915 hrs – 1115 hrs **Urological Rehabilitation Symposium**

Guest Faculty – Prof Dr. Manfred Stohrer (Urologist),
Co-ordinators – Dr. Kalyan Sarkar & Dr. (Prof.) D. K. Karmakar
Associate Co-ordinator – Dr. Sourav Iswarari (PMR)

Topics -

- UMN bladder,LMN bladder,Urodynamics and evaluation, Botulinum Toxins,Surgical options, CIC.

0915 hrs – 1000hrs Urodynamic assessment and Conservative Management of the Patient with Neurogenic Bladder Dysfunction
Speaker - Prof Dr. Manfred Stohrer
Chairperson –Dr K Pradhan, Dr Shivaji Basu

1000 hrs – 1100 hrs Case based Panel Discussion
Moderators– Dr Kalyan Sarkar, Dr D Karmakar
Discussants – Prof Dr Manfred Stohrer, Dr A Choudhury, Dr Bibhas Kundu, Dr R Dey, Dr K De

1100hrs- 1115 hrs Presentation of EAU guidelines on Neurogenic Bladder Dysfunction
Speaker: Dr Prabir Basu
Chairpersons: Dr A Kundu, Dr Animesh Das

1115 hrs – 1145 hrs **Peer counseling symposium**

Efficacy of Peer Counseling in Psycho-Social and Sexual Rehabilitation of People with Spinal Cord Injuries- Shivjeet Raghav, Peer Counsellor & Patient Education Coordinator, ISIC Hospital , New Delhi

Chairperson – Dr. Ratnesh Kumar.

1145 hrs – 1215 hrs Spinal bracing – Dr. S. L. Yadav, Prof. PMR, AIIMS & Indrani Bhattacharya, Senior Prosthetist, Endolite.

Chairperson – Dr. Rakesh Jhalani.

1215 hrs – 01005 hrs **Inauguration** – Mrs. Sabitri Mitra, Hon'ble Minister, Department of Social Welfare, West Bengal, Dr. (Prof.) Douglas Brown (PMR), President, International Spinal Cord Society; Dr. A. K. Mukherjee, President, Spinal Cord Society, India & Dr. Nirmal Maji, Co-Chairman, Standing Committee of Health Family Welfare W. B. L. Assembly.

1300 hrs – 1400 hrs Lunch.

1400 hrs – 1445 hrs Management of Spinal cord Injury: Achieving Independence through Physiotherapy - Ms. Chitra Kataria, HOD, Rehabilitation, Indian Spinal Injuries Centre, New Delhi.

Chairperson – Dr. Pankaj Mondal.

1445hrs – 1530hrs Psychological Management of Spinal Cord Injuries – Dr Divya Parashar, Psychologist, Indian Spinal Injuries Centre, New Delhi.

1530 hrs – 1615 hrs Occupational Therapy Management of Spinal cord Injury - Ms. Ruby Aikat, Asst. Professor, Indian Spinal Injuries Centre, New Delhi.

Chairperson – Dr. Ambar Ballav.

1615 hrs – 1700 hrs Significant Role of Assistive Technology Services towards providing Customized Wheelchair & Seating Mobility in achieving maximum functional independence - Nekram Upadhyay, HOD, Department of Assistive Technology, ISIC Hospital , New Delhi.

Chairperson – Dr. B. K. Chowdhury

For any query, please contact –

Dr. M. M. Ghatak (Secretary, ISSICON) – 9830041948.

ISSICON 2011

5th – 6th November

5th November, 2011

0830 hrs – 0900 hrs 0900 hrs – 1000 hrs	High Tea / Breakfast **Hall A**	
	Chair Persons: Dr. M.K. Bhattacharya, Dr. R.N. Roy, Dr. M.S. Ghosh	
0900 hrs – 0920 hrs	Predictors of Neurological & Functional outcome in SCI- **Dr. George Tharion**	
0920 hrs – 0940 hrs	Factors affecting the quality of life in SCI patient— **Dr Roop Singh**	
0940 hrs – 1000 hrs	Advances in the Management of Spinal Cord Injuries – **Prof. U Singh**	
1000 hrs – 1020 hrs	Spine Care Program- A national need **-Dr A K Mukherjee**	
1020 hrs – 1135 hrs	**Spinal Cord Society Orations** **Chairpersons- Dr A K Mukherjee, Dr H S Chhabra**	
	International Orator	
1020 hrs – 1055 hrs (30 + 5)	"The cost effectiveness of the prevention and treatment of spinal cord injuries"- Associate Professor **Dr. Douglas Brown,** Director, Victorian Spinal Cord Service, Austin Health, Melbourne, Australia	
	National Orator	
1055 hrs – 1135 hrs	The Indian spine problem – my long journey from 1947 till 2011 & my vision for the future- **Dr. Shailendra Bhattacharya**	
1135 hrs – 1155 hrs	Tea Break	
1155 hrs – 1310 hrs	**Chair Persons: Dr.Saumyajit Basu/ A. Sengupta/ Dr S. B. Tan**	**Chair Persons: Dr. Dr. P Kluger/ Dr. Ratnesh Kumar /Dr U Singh**
1155 hrs – 1215 hrs	Role of BMP in spine surgeries – **Dr Ujjwal Debnath**	1155 hrs – 1210 hrs – Development of therapeutic and diagnostic protocol in chronic low back pain – **Dr. Saurav Iswarari.** Panel Discussion- (35 minutes: 1210 hrs – 1245 hrs) Pursuing rehabilitation as an inpatient or outpatient after acute phase of SCI – Does it have any difference in outcome? **Moderator- Dr Pankaj Mondal** **Panelist – Dr Douglas Brown, Dr M M Ghatak, Dr Patrick Kluger, Dr A Chanda, , Dr Manfred Stohrer, Dr. G. Tharion**
1215 hrs – 1310 hrs	Panel Discussion – **Degenerative Scoliosis -** Moderator – **Dr S. Basu/ Dr A. Sengupta** i) When can you get away with Decompression only – **Dr. A. Chandra** ii) Conservative treatment of Deg. Scoliosis – what is the evidence – **Dr.Chinmoy Nath** iii) Surgery of Degenerative Scoliosis – How much? **Dr. Abrar Ahmed** iv) The role of Interventional Pain Management in Deg. Scoliosis – **Dr. Gautam Das**	Group Discussion: (25 minutes: 1245 hrs -1310 hrs) **Moderator – Dr K M Das** Quality of life after SCI in developing countries like India - Consumer's perspective- **Shivjeet Singh Raghav, Apurva, Sr. Sharmisths Sinha**
1310 hrs – 1345 hrs	Lunch	
1345 hrs -1545 hrs	**Chair Persons : Dr S. N. Ghosh / Dr. G. Tharion** **Spinal Cord Society Gold Medal Award for Best Paper Presenter** **Judges: Dr A K Mukherjee, Dr Douglas Brown, Dr Patrick Kluger, Prof S B Tan, Prof. Manfred Stohrer, Dr Ziad Al Zoubi, Dr Hans Joseph Erli, Dr P S Ramani, Dr**	

	Shailendra Bhatachary, Dr Arvind Jayaswal, Dr U Singh, Dr Saumyajit Basu, Dr. B. K. Chowdhury	
1345 hrs – 1352 hrs	Posterior only vertebral column resection in management of severe angular spinal deformity – **Dr. Pankaj Kandwal**	
1352 hrs – 1359 hrs	A pilot RCT to analyze the role of autologous stem cell and omentum transposition in Spinal Cord Injury – **Dr. Rajeshwar Nath Srivastava**	
1359 hrs – 1406 hrs	Decompressive surgery for dorsal / dorsolumbar myelopathy due to ossified ligamentum flavum - **Dr. Prashant Baid,**	
1406 hrs – 1413 hrs	Comparison of saggital alignment, balance of spine and pelvis between Indian and European population – A pioneer study – **Dr Gururaj**	
1413 hrs – 1420 hrs	Experience of harms fixation for C1 C2 instability in 12 patients - **Dr. Rajat Mahajan**	
1420 hrs – 1427 hrs	The Radiographic Failure of Cervical Plate Fixation in Traumatic Cervical Injuries **Dr. Darshan Gautam :**	
1427 hrs – 1434 hrs	Surgery for unreduced cervical facetal dislocations – anterior/posterior/combined – our experience of 19 patients - **Dr. Agnivesh Tikoo**	
1434 hrs – 1441 hrs	Evaluation of Problems Faced By Spinal Cord Injury Patients Living In the Community- **Dr. Roop Singh**	
1441 hrs – 1448 hrs	Correlation and Regression among pain, Physical Strength functional ability quality of life and sexual frequency in low back pain - **Prof. V. P. Sharma**	
1448 hrs – 1455 hrs	Neural plasticity in rehabilitation--hope for the 'not so hopeful' - **Ms. Ruby Aikat**	
1455 hrs – 1502 hrs	Participation following traumatic SCI & its correlation with self rated health and life satisfaction: **Ms. Shefali Walia**	
1502 hrs – 1509 hrs	Posterior Transpedicular Decompression for Thoracolumbar Traumatic Fractures – B. I. N. Kolkata Experience - Dr. **Sunit Saha**	
1509 hrs – 1516 hrs	Surgical outcome of IDEM tumors in the short term - **Dr Narendra Kumar**	
1516 hrs – 1545 hrs	Discussion	
1545 hrs -1600 hrs	**Hall A**	**Hall B**
1600 hrs – 1715 hrs	**Chair Persons: Dr. Phani Mondol/ Dr. Sudipta Chatterjee/ Dr Ziad Al Zoubi**	**Chair Persons: Dr. Douglus Brown/ Dr. Swapan Mondol / Dr. S. L. Yadav**
1600 hrs – 1620 hrs	Management of Atlantoaxial TB - **Dr. Shankar Acharya**	Effective use of peer counseling to facilitate lifelong adjustment of persons with SCI in developing countries- **Shivjeet Singh Raghav**
1620 hrs – 1640 hrs	Management options for congenital scoliosis of less than 5 yrs of age –**Dr Arvind Jayaswal**	Management of Decubitus ulcer in SCI patients (Indian experience) – **Dr Mrinal Joshi**
1640 hrs – 1700 hrs	IDSS for lateral recess stenosis combined with posterior interspinous dynamic stabilization - **Dr P S Ramani**	Medical management of osteoporosis –**Dr K Das**
1700 hrs – 1800 hrs	Spinal Cord Society General Body Meeting	
1815 hrs – 1915 hrs	Inauguration	
2000 hrs onwards	Banquet Dinner	

6th November, 2011

0830 hrs – 0900 hrs	High Tea / Breakfast **Hall A**	**Hall B**
0900 hrs – 1130 hrs	Plenary Session – **Chair Persons: Dr. Sailendra Bhattacharya/ Dr. B C Mohanty / Dr. Ambar Ballav**	
0900 hrs – 0920 hrs	The effect of intensive exercise on SCI outcomes - **Dr. Douglas Brown**	
0920 hrs - 0940 hrs	Current Scenario of Stem Cell Therapy in Human SCI– **Dr Ziad Ul Zaubi**	
0940 hrs – 1000 hrs	Neglected Spinal Cord Injuries –**Dr H S Chhabra**	
1000 hrs – 1020 hrs	Management of Sacral fracture – **Dr Hans Joseph Erli**	
1020 hrs – 1040 hrs	Paediatric Spine Fractures- **Dr P S Ramani**	
1040 hrs – 1100 hrs	Development of SCI services through ASCON (Asian Spinal Cord Network) - **Stephen Muldoon**	
1100 hrs – 1130 hrs	**Best Published paper award-** **Chairperson - Dr Patrick Kluger** "Thoracic myelopathy due to ossification of ligamentum flavum:a retrospective analysis of predictors of surgical outcomeand factors affecting preoperative neurological status" –**Dr Amish Sanghvi"** & "Pain after paraplegia in India- a survey" –**Dr Nalina Gupta**	
1130 hrs – 1200 hrs	Tea Break	
	Chair Persons: Dr. G K Prusty/ Dr. Pulak Deb/ Dr Hans Joseph Erli	**Chair Persons: Dr. Kunal Sengupta/ Dr. Sandip Chatterjee / Dr. Bhabani Chowdhury**
1200 hrs – 1220 hrs	Management of vertebral injuries in ankylosing spondylitis - **Dr. Patrick Kluger**	Autonomic dysreflexia –**Dr Vijay Sharma**
1220 hrs – 1240 hrs	Recent advances in management of Degenerative Cervical disc disease - **Dr. Tan Siang Beng**	Sleep disordered breathing in quadriplegia - **Dr. Douglas Brown**
1240 hrs – 1300 hrs	Does ozone discolysis - percutaneous disc decompression stand up against conventional Discectomy? - **Dr Samir Anand**	Interventional physiatry – in Spondylolisthesis **Dr. Rajesh Pramanik.**
1300 hrs – 1315 hrs	Management of recurrent disc herniations - **Dr H N Bajaj**	Physiatric management of Spondylolisthesis – **Dr. P. K. Mondal**
1315 hrs – 1330 hrs	Management of spinal metastatic disease - **Dr Ankur Nanda**	Management of Acute Spinal Cord Injuries – **Dr Gururaj**
1330 hrs – 1415 hrs	Lunch	
1415 hrs – 1545 hrs	Free Papers	
	Chair Persons: Dr. G G Kar/ Dr. Suniti Saha / Dr. A. Chanda	**Chair Persons: Dr. Kaushik Ray / Dr. Asim Palit / Dr. Subashish Ghosh**
1415 hrs – 1421 hrs	C6 and C7 cervical spinal injuries -an experience in an ongoing study through anterior approach- **Dr S Chatterjee**	SCIWORA in adults – a case series - **Dr. Rajeshwar Nath Srivastava**
1421 hrs -1427 hrs	A comparative study of posterior approach (tasnpedicular) vs Anterior approach (Tranthoracic) for wedge compression fracture of thoracolumbar vertebra- **Dr Parthasarathi Datta**	The effect of modes of instructions : video versus verbal on training of wheel chair curb ngotiation in spinal cord injury. – **Ms. Jaskirat Kaur**
1427 hrs - 1433 hrs	Radiographic and clinical outcomes following anterior cervical decompression and allograft fusion without plate placement - **Dr Srikrishna Majhi**	Relationship between shoulder pain and hand grasp position during manual wheelchair propulsion in Tetraplegics – **Ms. Stuti Sehgal**
1433 hrs – 1439 hrs	Epidemiological Study of Incidence of	Outcome of minimally invasive

	Backache in School Children vis - a - vis Weight of School Bag and other LifeStyle Factors - **Dr Virinder Singh Gogia**	technique in management of Thoracolumbar trauma : **Ankur Goswami,**
1420 hrs – 1445 hrs	Comparative Study Of Posterior Fixation In Acute Unstable Thoracolumbar Injuries By Monoaxial And Polyaxial Pedicle Screws - **Dr. Rajeshwar Nath Srivastava**	Percutaneous C-arm guided Wide bore needle biopsy for intra osseous spinal lesions - **Dr. Agnivesh Tikoo,**
1445 hrs – 1451 hrs	Anterior vs. Posterior procedure for surgical treatment of Thoraco-Lumbar Tuberculosis: A retrospective analysis - **Dr Pankaj Kandwal**	Experience in the management of Myelomeningocoele in Bangur Institute of Neurosciences – **Dr. S.K. Kumar**
1451 hrs – 1457 hrs	Tubercular atlantoaxial instability – is surgery necessary - **Dr Jaydeep Ghosh**	Demographics, Morbidity and Employment of patients with Spinal Cord Injury in India. - **Nalina Gupta**
1457 hrs – 1503 hrs	Transpedicular fixation in subaxial cervical spine trauma – our experience - **Dr Nilay Biswas**	Pattern of pressure ulcer in individual with spinal cord injury paraplegia vs tatraplegia- **Ms. Ashima**
1503 hrs -1509 hrs	A comparative study of posterior fixation of thoracolumbar spine injuries by long segment instrumentation and short segment fixation - Dr.**Rajeshwar Nath Srivastava**	Study of lung function and respiratory muscle strength in patients with cervical spine injury – **Dr. S. K. Kumar**
1509 hrs -1515 hrs	Spine Injury in Pediatric Population- **Dr Bansal**	Surgery for Pressure Ulcers Improves General Health and Quality Of Life in Patients with Spinal Cord Injury - **Dr. Roop Singh**
1515 hrs – 1521 hrs	Demographic Profile of Patient with Spinal Cord Injury Admitted at Indian Spinal Injuries Centre- **Mr. Mohit Arora**	Botulinum A Toxin in the management of Detrusor Hyperreflexia – An Indian experience – **Mr. Pawan Kumar**
1521 hrs- 1527 hrs	Discussion	Body Weight Supported Treadmil Trainings- **Ms. Nisha Rawat**
1527 hrs – 1545 hrs	Discussion	Discussion
	Moderator – **Dr S. N. Ghosh / Dr G Bhattacharya**	**Chair Persons (Hall B): Dr. Manmohan Biswas/ Santanu Dutta/ Dr Manfred Stohrer**
1545 hrs – 1630 hrs	Panel Discussion- Management of high grade spondylolisthesis i)Clinicoradilogical assessment – **Dr Kiron Mukherjee** ii)In-situ fusion – **Dr.Sudipta Chatterjee** iii) Reduction – **Dr Ajay Agarwal** iv)Literature Review – **Dr Sandip Ghosh**	Prevention and management of respiratory complications in acute setting of SCI- **Dr. Koustubh Chakraborty** Exercise prescription and bracing in osteoporosis - **Dr S L Yadav** Team based rehabilitation - **Dr. P. P. Pan**
	Moderators- **Dr. Abrar Ahmed/ Dr.Chinmoy De**	**Chair Persons (Hall B):, Dr Kanchan Sarkar Chakraborty/ Dr. Srikanta Kundu / Dr. P. P. Pan**

1630 hrs – 1715 hrs	Panel Discussion- **Strategies in osteoporotic spine –** i)Vertebro /Kyphoplasty for osteoporotic Spine Fracture- **Dr. B. K. Singhania** **ii)**Instrumentation in osteoporotic spine – What is the challenge -- **Dr. Dibyendu Roy** iii)Role of Drugs in surgery for osteoporotic spine—**Dr Kunal Sengupta** iv)Role of Rehabilitation for osteoporotic spine -- **Dr. K. M Das**	Occupational and functional rehabilitation – **Dr Swapan Mishra** Clinical Proteomics in SCI- **Dr Debasish Mukherjee** Anesthetic complications in Spinal surgery –**Dr Bibhkalyani Das**
0500 hrs	Valedictory	

Spinal Cord Society Gold Medal Award for Best Poster Presenter 24 **Judges :Dr Patrick Kluger, Dr S B Tan, Dr Ziad Al Zoubi, Dr Hans Joseph Erli,Dr Ujjwal Debnath, Dr Vijay Sharma**
Spontaneous Epidural cervical hematoma, a masquerader - **Dr. Rajat Mahajan**
A rare case case of paraperesis due to L5-S1 discprolapse – **Dr Gururaj**
Report of the Difficulties experienced in the anterior cervical plating in the cervico dorsal scoliosis – a rare case - **Dr Gururaj**
Role of Decompression in Late presentation of cervical spinal cord injuries in rural India - **Dr. Sandeep Shrivastava**
Diagnostic and prognostic role of MRI in spinal trauma, its comparison and correlation with clinical profile and neurological outcome, according to ASIA impairment scale - **Dr. Rajeshwar Nath Srivastava**
Development of 'अनुभवीय यौन संबंधि तनाव मापक' (Perceived sexual distress scale) for measuring the sexual distress in subjects with spinal cord injury - **Ms. Ruby Aikat**
Effect of Wheelchair skill training on psychosocial impact of using wheelchair by traumatic spinal cord - Stuti Sehgal - **Ms. Stuti Sehgal**
Rehabilitation Outcomes in Traumatic Cervical Spinal Cord Injury in Elderly People – **Mr. Mohit Arora**
Rib Osteochondroma presenting with paraparesis – a rare manifestation – **Dr Nishit Patel**
Vertebral Hemangioma : Rare clinical presentation and challenges during management – **Dr Darshan Gautam**

Spine Care Program – A National Need

India is passing through an epidemiological transition wherein the disability load from noncommunicable diseases is increasing on the back drop of already existing high disability load from communicable diseases. With the economic development the changing lifestyle increases the life span and road traffic accidents and thus spine problem is multiplying in Indian population. The spine care program is truly a public health issue. In the past Government of India has been very successful in effectively running many public health programs. The Author will highlight the quantum and the types of problems in Indian disability scene and will suggest the effective remedial measures so as to minimize the disability burden in the country.

The West Bengal State has a relatively better healthcare infrastructure as compared to national level (bed population ratio) but badly lacks in creating dedicated spine care program in the State. It is high time that West Bengal should have a spine care public health program along with a model spinal cord injuries centre. As most of the delivery of health services are carried out in private sector a Public Private Partnership model (PPP) for establishing spinal injuries centre can be a viable solution. Time is ripe to make a collective effort to solve the problem.

(Dr. A. K. Mukherjee)
Director General,
Indian Spinal Injuries Centre, New Delhi
& President - SCS

Ref: D/D-2/4a

1) SPINE ORATION – ISSICON 2011

"THE INDIAN SPINE PROBLEMS – MY LONG JOURNEY FROM 1947 TILL 2011 AND MY VISION FOR THE FUTURE."

DR. SAILENDRA BHATTACHARYYA
B.O.R.R.C., KOLKATA

2) To start with, let me place myself in this situation for delivering this prestigious Oration in spine, which I don't know how much I shall be able to fulfill your desire. I belong to the age of British Raj, born in the year 1924, and only after Independence in 1947 as a clinical student at R.G. Kar Medical College& Hospital Calcutta, where I had the opportunity to see the patients. Truly speaking in those days spine problems were not a speciality as it is today. At least I did not see my teachers to talk on spine except Back Pain, Tuberculosis, and Fracture Spine, because all of them were general surgeons, who were busy with stomach, gallbladder, genito urinary and others problems rather than that of the Spine and Back Pain. It was not that the people did not suffer, though Back pain was a common problem. So, from that stage gradually I shall describe what I have seen in my life since 1947.

The importance of Spine has been recognized since human being started to walk on the legs and on both the feet with a direct (straight) vision. That straight vision made the Spine straight & with a straight vision, human brain also changed and developed with evolution "To stand and stair", to become the most intelligent among all the other species. That is why the world has changed so much due to the human brain.

Spine is personality, often we say that he is a Spine less person. Spine less person means a person without any personality, so every way Spine is very important for us as human being.

Problems of human spine are the same all over the world but the difference of the problems are need based according to the place, the way of life, job and activities of daily life, bone stalk and food habits + Sunshine.

In our days we were Orthopaedic Surgeons, who used to do everything in the locomotor system including Spine. Neuro Surgeons in S.S.K.M. Hospital also used to take care of Spines. There were always a tussel between Neuro Surgeons and Orthopaedic Surgeons to deal with the Spine. As far as I was concerned, I delt with all the problems of Spine except Spinal Cord Tumors, Congenital anomalies of the spinal cord and vascular malformations which I left for the Neuro Surgeons to deal with it.

1950-1953 – As an Internee and then a Resident in Orthopaedics we treated 1) Fracture Spine without Paraplegia 2) Traumatic Paraplegia 3) Tuberculosis of the Spine 4) Back pain.

Investigations available were Plain x-ray, Tomography in some special places and routine Blood exam + some special tests.

Medicines were a) Prescription and mixtures used to be served by the Pharmacists with - b) Aspirin, Salicylic Acid, and its derivatives. c) Penicillin, Sulfa and lastly Streptomycin

1) Fracture Spine without Paraplegia were treated by Plaster Jacket applied with Two Table Method as per Watson Jones, to open up the wedge compression of the vertebra, extending from sternum to pubis anteriorly and mid dorsal to mid sacral posteriorly. Ambulation was allowed but the patients never started to walk before 3-6 weeks. After 12 weeks, Plaster Jacket was removed and the patients started to walk.

2) Fracture Spine with Paraplegia was a dreadful condition, leading to death almost in 90% of the patients due to prolonged catheterization and bladder infection + Pressure sores. All our efforts by turning the patient in bed and bladder wash failed due to our negligence, and the patients died. Bladder wash was a routine, obviously with repeated catheterization. Some times suprapubic cystostomy was necessary. I still remember how thick pus had to be washed out by bladder wash.

3) Tuberculosis of the Spine used to be diagnosed clinically by pain + Localised tenderness,spasm in spine and cold abscess + X-ray and rise in E.S.R. in blood. X-ray findings were typical – destruction of adjacent vertebrae with the disc + cold abscess. Treated by bed rest, Plaster Jacket, Aspiration of the cold abscess and injection of Streptomycin locally with the aim and object of healing of the bones by interbody fusion. Systemic Streptomycin injection for 6 to 12 weeks, assessed by improvement in general health lowering of E.S.R. in blood, radiological assessment of healing. Some times Streptomycin caused loss of hearing in adults due to paralysis of the auditory nerve.

Surgery was contra indicated because of persistence of sinus due to secondary infection. Cold abscesses used to be aspirated from normal adjacent site opposite to the dependent area.

4) Low Back Pain used to be treated by bed rest. **In females,** treatment of the pelvic inflammation was done. In some patients we used to give Intramuscular Milk injection (sterile ampoules were available), Vit B12 injection. Locally 5cc of auto blood injection into the muscles to develop auto immunity. It did work in many patients. Vaccines made from throat swab culture also used to be injected sub cut or I.M. twice a week for 6 weeks to develop auto immunity. Many patients were successfully treated by this method. Braces and Belts were not available.

1953 to 1956 – My learning phase abroad, mostly in U.S.A. and partly in U.K. and did my F.R.C.S. from the Royal College of Surgeon of England from London.That changed my vision. I had the opportunity of learning Intervertebral disc Surgery, Spinal fusion by Albee and Hibbs procedure, facet blocks by bone, Scoliosis treatment by Turnbuckle Plaster Jacket correction and long posterior fusion of Laminae and spnious processes. Fracture spine by plaster and physical Rehabilitation. Conservative management of paraplegia. Tuberculosis was seen in England.

DEGENERATIVE SPINE (SPONDYLOSIS):- I learnt the pathophysiology, clinical findings, x-rays changes and sequelae. Clinical findings and x-ray changes in PID and other Lumbo sacral pathology + Cervical spondylosis I learnt very thoroughly from Text Books and also by seeing many patients, a common problem in U.S.A. Dr. Ishmael published case reports of Indian Porters carrying weight on head for long years, development of cervical spondylosis with radiological changes and symptoms, compared it with American women and came to a conclusion that carrying over head weight for many years did not

cause symptoms as in American women and concluded that the stress in American women was the cause of the symptoms which was absent in Indian Porters. I helped him in doing this work which was published in Clinical Orthopaedics and Related Research which was very thin at that time and used to be published from the south. Dr. Ishmael was in the Editorial Board. In England I learnt the conservative treatment of Traumatic Paraplegia from

Rehabilitation Centres. Costotransversectomy for T.B. Spine with abscess or paraplegia, and many other procedures in spine. Spondylolisthesis by Posterior fusion and facet fixation was the practice at that time. Has had the opportunity to listen to the Hunterian Lecture delivered at the Royal College of Surgeons in 1955 by Prof. B. Mukhopadhaya of Patna, on Tuberculosis of Bones & Joints where he advocated open surgery in Tuberculosis of bones and Spine, contrary to the existing procedures at that time.

Back Home by the middle of 1956 – till 2000 A.D. Initially since 1957 I started to work at Sambhu Nath Pandit Hospital and then at R.G. Kar Medical College since 1958 till 1976 and later on in Nursing Homes and finally at BORRC since 1994 will now be the basis of my talk. Constructed and started BORRC in 1994 and transferred myself to this Institution since then. My narration will be about the gradual changes, with approximate dates, not to be authenticated (as it came in my mind) but the facts are true. We were three, Dr. A.K. Das, Dr. R.N. Mitra and myself in Kolkata + Prof. A.K. Saha, Dr. M.L. Chatterjee, Dr. M.S. Ghosh + Prof. Dr. B. Mukhopadhyay in Patna, Dr. K.T. Dholakia, Dr. Talwalkar, Dr. Masalawala, Late Prof. Natarajan in Chennai and with a long list of orthopaedic surgeons from Hyderabad and Chennai and all over who initiated the changes for the advancement in India, followed by many in the next generation with spine as a speciality, with few dedicated Flag Bearers.

INDIA WILL BE NO LESS THAN OTHERS FOR THE SERVICE OF THE HUMANITY.

PROLAPSED INTERVERTEBRAL DISC, SPINAL CANAL STENOSIS & SPINAL INSTABILITY.

I always took the decision for Surgery after 6 weeks of conservative treatment by Pelvic traction, Lumbosacral Brace, Flexion spinal exercise, NSAI drugs & tranquilizers. Surgery could be avoided in many cases.

In Pre – MRI – Era – 90% of the clinically determined disc used to be treated conservatively by traction, brace & medicine, only 10%needed surgery due to persistence of neurodeficit.

In Post – MRI – Era surgery is performed in 80% of the patients because of the visible disc in MRI, seen by the patient who easily agrees for surgery.

In this context let me present two cases ********

1) Mr. Arun Gupta, age 20 yrs, Nephew of Genl. Gupta, Director + Surgeon Supdt. of S.S.K.M. Hospital, had a sudden acute back ache with radiation to left leg, down to left foot. Clinically this was a P.I.D. L4 L5 Left side (MRI was not available in those days). I suggested Pelvic traction, L.S Brace and Anti inflammatory drugs. Obviously, me a young surgeon, coming from abroad, he couldn't have faith in me. Sir Harry Plat, President, Royal Collage of Surgeons of England was visiting India and came to

Calcutta at that time. A clinical meeting was held at S.S.K.M. Auditorium, where all our stalwarts came and demonstrated many of their achievements. Mr. Arun Gupta was also presented by one surgeon when discussions went on and finally couldn't come to a decision regarding the treatment. This young Surgeon (myself) asked the permission, if I could say something which was allowed. I suggested Pelvic traction, Brace and Medicines for 3-6 weeks, if he does not improve then surgery.

Sir Harry circustically said " Doctor do you think the disc will go in? I said "Sir, I don't know but patients get well. Ultimately I treated him, who was completely relived of pain, led a normal life, has had children, grand children, well settled in life in U.S.A.

2) Dr Sasanka Sekhar Chatterjee, 65 yrs Ex- Professor of Plastic Surgery of S.S.K.M Hospital, reported to me about year and half ago with acute pain along the right thigh and leg down to the foot for 3 months with a huge extruded disc at L4 L5 level. Obviously everybody suggested surgery. He was referred to me by another Plastic Surgeon Dr. V.S. Rathore of Medical College, because Dr. Chatterjee wanted to avoid surgery. Due to his request, I advised him for conservative treatment by Pelvic Traction, Lumbosacral Brace and Paracitamol + Eterocoxib for treatment. Unbelievable relief was obtained and he is 100% fit till today.

3) We did not have –MRI until 1985, No C-Arm till 1990. I started doing surgery since 1957 in I.V.Disc & Canal Stenosis. If it was a pure disc bulge or protrusion or sequestration seen as a block in the myelogram, with SLR less than 70 degree + Motor Neuro deficit, Surgery was indicated by Laminotomy and Discectomy. There was no C-Arm until 1986, when level could be checked by C-Arm with Television. During Surgery level used to be confirmed by pulling the S1 spinous process (stable) and L5 spinous process with movement, then counting the other spinous processes to determine the level. Always exposed the opposite side (asymptomatic) by laminotomy. In the elderly, always did Laminectomy + Discectomy + Partial facetectomy to remove the disc and to widen the root canal. If there was a buldge in another level of disc, then Laminectomy in that level also used to be done. Facet Joints were preserved to stabilize
the segments. If we had to cut the spinous processes more than two, then kept it with attached interspinous ligament which was re-attached by SS Wire. Post Operative back support and spinal exercises was mandatory. If there were osteophytes from the vertebral plate or osteophytes from facets, those were removed by sharp osteotome after root was retracted, then disc was removed by Disc forceps (Calibrated by me as a depth gauge to avoid piercing the ant long ligament and damaging the blood vessels anterior to vertebral bodies.)

Surgery in Spinal Stenosis was much more difficult than discectomy after PIVD. Sometimes the roots and dura was strangled between the hypertrophied ligamentum flavum and the bodies of the vertebrae. There was every possibility of dural tear with prolapse of the nerve roots like worms.I had to face such a situation, though very rarely, when lowering of the head end of the table lessened the C.S. fluid tension, when the dural tear was repaired. In spinal stenosis, Laminectomy is to be started proximal to the site of the stenosis and by Kerrison's punch forceps.

I never did inter body fusion after disc surgery unless there was instability. Pedicle screw fixation with postero lateral fusion in case of instability was my choice in later years with the help of C-Arm which was installed at our hospital in 1996 with attached television. Previously there was one C-Arm at R.K. Mission Hospital and S.S.K.M. Hospital where there was no television and had to be seen by telescope.

POSITION OF THE PATIENT FOR DISC SURGERY was

1) Flexion spinal frame, I got it made locally as per the design in U.S.A. 2) Knee chest position 3) Pillow under the chest and pelvis, keeping the abdomen free for breathing 4) Spinal frame for Scoliosis with knees hanging from the lower end of the table. All these methods were meant for helping the anaesthesia, lessen the bleeding at the operation site, avoid deep vien thrombosis and other complications. I arranged for myself a) Head lamp attached to a frame, cold light sources fixed to the retractors, good suction apparatus, Bipolar diathermy to avoid the heat near the spinal cord or roots. I also had a spectacle with
magnifying glass to see operation site more clearly. I never preferred to do minimally Invasive Surgery, Micro surgery or Endoscopic surgery because of lack of my training. In the hands of super specialists it does miracle as published in the journals. Indication should be in acute disc prolapse in young patient.

ANKYLOSING SPONDYLITIS

1) Surgery for the correction of the gross deformities by osteotomy of the spine is necessary to improve the straight vision and gait disability.

2) Deep X-ray therapy caused aspermia in males and inability to conceive in females. I have not seen any malignancy of spine following Deep X-ray therapy, though it happens. In few advanced cases with gross deformity and Kyphosis osteotomy of the Lumber or cervical spine had to be done to give the patient a straight forward vision, along with plaster immobilization. First case I did was in Sambhu Nath Pandit Hospital in 1957.

3) Explanation of the disease process and deformities, activities of daily life, postures and positions will help the patient in continuing his activities along with NSAI drugs and exercise. This helped many of my patients for many many years. Regular blood exam to detect the complications eg. Nephropathy, marrow depression due to the effect of medicine, is necessary.

CARIES SPINE (T.B.) AND INFECTIVE DISCIITIS

1) Lot of changes have happened in the treatment of both the conditions regarding surgery eg. Drug resistant tuberculosis and also organisms in infective disciitis and their management in our (Indian / Bengali) patients.

2) **In T.B. Spine –** Affects patients at any age, male & female alike, apparently females are more affected. Immobilization by plaster or prolonged Brace + Anti Biotics and chemo therapy cures majority of the patients in course of time, about 6 months. Anti T.B. Drugs are to be continued for one and a half years.

MRC study from a group of Orthopaedic Surgeons headed by Lloyd Griffiths from England at Kenya proved the efficacy of treatment by anti T.B. drugs + plaster jacket for ambulatory treatment of the patients.

A group Surgeons at Hongkong, showed the method of anterior vertebral debridement and fusion with early cure for the patients.

Prof. Dr. S.M. Tuli of B.H.U. after his research in U.S.A. and at BHU (India) advocated the Middle Path Regimen for T.B. Spine according to the indication. This is accepted as a standard treatment until the question of Drug Resistant T.B. came in the field of management.

3) From 1958 till 1970 we used to treat caries in dorsal and lumber spine by Anti T.B.Drugs for 3 weeks, then Posterior spinal fusion and Plaster bed for 3 months, followed by Brace and Anti T.B. drugs for 1½ years. We had excellent predictable result and Cost effective and cure. Complications were much lesser than direct open Surgery, though Prof. B. Mukhopadhya showed me open surgery in 1958 at Patna in Dorsolumber Spine.

4) Cold abscesses were aspirated and injected with streptomycin solution, even trans orallyin cervical spine with Minerva Jacket Plaster in cervical spine and Body Jacket plaster in children was the treatment of choice.

5) Surgery was avoided in premarital girls and children. For the girls to avoid scar. In children it always heald by our conservative treatment and plaster.

6) T.B. Spine with paraplegia or large cold abscess was always treated by direct exposure since 1958. Thorough debridement and removal of sequestrae and then interbody fusion by bone graft, usually iliac crest, locked in a gutter made by osteotome and gouge, to avoid dislodgement post operatively, fallowed by Brace or plaster. More than three hundred cases of chronic T.B. Spine I operated at Jadavpur T.B. Hospital.

7) Standard exposures were anterior or posterior to sternomastoid in cervical spine. In dorsal spine I started with costotransversectomy and then anteriorly after cutting a rib (Trans pleural). Dorsolumber either by cutting the diaphragm or by 11th rib resection, extraperitoneally. Lumber and Lumbo sacral spine by extraperitoneal approach, usually from left side, easier to deal with the aorta and lumber vessels. Though debridement and iliac or rib graft or in combination was of choice. That gave early recovery of the patient with interbody fusion they were allowed ambulation after 6 weeks with back support.

8) Surgery in tuberculosis is easier because of its avascularity of the lesion where as surgery in **Infective Discitis is difficult** because of the more vascular lesion, when it bleeds severely during debridement and curettage. Bone grafting might sequestrate by any cortical or rib graft. With this experience in surgery Infective discitis and vertebral osteomyelitis I stuck to conservative management by complete plaster bed for 3 months with Broad spectrum Antibiotics Intravenously or Intra Muscularly for a long time with 100% success till to day. Now a days we do C.T. guided aspiration biopsy and culture sensitivity of the material before choosing antibiotics.

FRACTURE SPINE PRESENT DAY SCENARIO FROM THE DARK DAYS OF SURE DEATH.

Total change of concept regarding the anatomical classification of this fracture into 3 columns, indications for surgery and early ambulation with internal fixation by pedicle screw with construct and bone grafting leading to recovery of paraplegia or at least a wheel chair life or with crutches, even helping the sexual life, bladder and bowel control, with rehabilitation by physical medicine and psychological assistance, a hope for paraplegics have overcome the conservative rehabilitation management for these patients. Rehabilitation is always necessary after surgery, to put the patient to their maximum ability.

Though Surgery is the aim and object, Rehabilitation is still necessary after surgery and also in the remote villages when the patients are brought quite late with complications. Dr. D.K. Sinha at Patna and Paraplegia centre at Bangalore and Mangalore + SPINE INSTITUTE AT NEW DELHI are exemplary.

Stem cells for recovery of the spinal cord Injury is on the way.

We were so frustrated in our early days till 1970 to manage the paraplegics properly by preventing the pressure sores and bladder infection in the hospitals that **in a (black) Symposium of the IOA at Benares,** there were two groups of Surgeons, one group advocating a willful neglect for them to die early and the other group still wanted to rehabilitate them by special care. Of course, the groups who wanted to rehabilitate them won the debate.

We started to treat the paraplegics and Quadriplegics by repeated and regular turning in bed by washable draw sheets, pillows made by loose sand or plastic balls to support the limbs, technique of self Catheterization, regulation of the diet to control bowel and improving the management by trained personnel or physiotherapist. Air or water bed was an addition in the management.

Dr. D.K. Sinha of Patna demonstrated the way the family members could be the best people to utilize for the rehabilitation and solving the problem for the huge mass of our village population.

Now a days as soon as a fracture spine comes in our Institution, we even after 2-3 days, start with steroids and medicines to dehydrate the ocdematous cord, antibiotics, all physiotherapectic measures including water bed, send the patient with back support for Digital

X-ray and also MRI and NCV after **through clinical examination** for an assessment, discuss with the patients next of kin and go for surgery for pedicle screws and construct after laminectomy, decompression, reduction of the fractured fragments posteriorly or even anteriorly at the same time leaving with pulsating dura. Even after an apparent transaction in the MRI some fibres regenerate, some fibres are roots, depending on the level of the lesion, below Dorsal (10). Pedicle screw with constructs, make the fracture stable for
immediate rehabilitative measures by physiotherapists to put the patient in a wheel chair from next day, teach the family members for all rehabilitative measures to take the patient back home, to make the treatment more cost effective. We are fortunate now for partial or even full recovery of post traumatic paraplegia in our centre.

Now a days in the trauma courses all these methods are demonstrated in the worhshop for the surgeons. All Spine and Trauma Surgeons should learn and dedicate themselves for helping another person of our species to get better. For the last 10 years we feel happy to rehabilitate paraplegics, and save them from miserable death.

SPONDYLOLISTHESIS

a) In Degenerative spondylolisthesis, we consider it as instability. Patients never agree for fusion though I learnt the technique of PLIF (Posterior Lumber Interbody fusion) from Dr. P.S. Ramani from his book

and lectures. His technique I have practiced on mypatients following disc surgery with instability as seen by lateral view of the X-ray in flexion and Extension of the Spine.

b) Spondylolisthesis with defect in the pars. I gave up posterior fusion till 1970 due to the failure of fusion in most of the cases. Our treatment of choice was conservative by pelvic traction, Rigid L.S. Brace and NSAI Drugs.

With the concept of Postero lateral fusion, because of the minimal movement between the transverse processes of Lumber Spine we started to perform Inter transverse fusion along with lateral mass by bone graft and followed by plaster bed for 3 months. The outcome was excellent in every patient with a Lumbo Sacral Brace for 3 more months. Later on we started early ambulation with molded high Lumbo Sacral Brace (premade) to compete with the next generation who does fusion with Pedicular Screws with construct. Our success rate was no less. I never attempted to reduce the displacement of the listhesis.

My next generation does attempt to reduce the listhesis, fixes with pedicle screws with construct, lateral + Interbody fusion by bone graft with excellent outcome.

Complication of the implants also happen and we have the experience of sharing and dealing with those problems at our Institution.

c) In grade III of spondylolisthesis when the progression has stopped due to age and degenerative changes in the disc and facets I have been doing the Gills procedure by removal of the Loose lamina and protruded I.V. Disc, releasing the nerve roots laterally, that relieved the patients pain. A molded L.S. support helps to stop the instability.

d) Though we have read and seen removal of vertebral body in grade IV spondyloptosis we never dared to do this procedure though I still have the temptation of doing it or get it done some time through my next generation.

VERTEBROPLASTY AND KYPHOPLASTY

Method: By injecting bone cement through pedicle by special needle to expand the fractured spine with intact position cortex or by balloon to expand the vertebral body under C – Arm. Unfortunately because of my fear for leakage of cement into the spinal canal resulting complete, irrecoverable paraplegia, 100% for that person, I did not try this method because of my lack of training, and also seeing one or two patients with such catastrophic outcome, though it is a standard method all over the world for relief of pain in late cases of fracture spine or osteoporotic spine within 72 hours after the plasty. I myself had a fracture of D11 and D12 due to a fall in the Nagpur Railway Station in 1998. I am slightly bent forward and have some pain while going to bed or getting up from bed due to this pathology and not due to my
age (88 yrs) Doctors are the worst patients, I am an example, who never did the exercises properly, never tried to reduce the weight. A new young consultant well trained in vertebroplasty and kyphoplasty at the Sri Ramchandra Medical College and University, at Chennai will do this procedure in our Institution. Hoping for the best.

OSTEOPOROTIC FRACTURES OF VERTEBRAE

Fractures of dorsal or dorsolumber spine in multiple vertebrae are quite common in the elderly or old patients, specially after menopause or male climacteric. Pain persist even after improvement in Bone mass by specific medicines. Hence correction of kyphosis + pain in spine due to fracture scan be relieved by vertebroplasty, injecting cement into the vertebral body.

SCOLIOSIS

1956 till 1966

Initially my concept on Scoliosis was the lateral curvature of the spine mostly divided into Paralytic, Idiopathic + congenital verieties. With this basic knowledge, correction was made by cervical and leg traction or Halo pelvic traction for 3-6 weeks, followed by Turn Buckle Plaster Jacket correction and then through a large window at the Back of the plaster, Moe type of posterior fusion of the Laminae and spinous processes used to be performed by Albee and Hibbs procedure. Until Cotrel visited us in Calcutta in 1984.

Dr. R.N. Mitra from Kolkata worked with Dr Edward L. Compere at Cicago in 1953 and went for the second time in 1966 to work with Dr. John E. Hall at Toronto and tried to establish Harrington Rod Instrumentation at National Medical College and then at Calcutta Hospital (CMRI) for Scoliosis. Truly speaking he was the Pioneer in Scoliosis Surgery in India, though almost at the same time, little later Dr. K.T. Dholakia at Bombay Hospital established Scoliosis Surgery by Harrington Rod instrumentation and propagated it in western India.

John Hall came to India (by invitation) and did a workshop in Feb, 1970 for two days at National Medical College and made a live demonstration of Harrington Rod instrumentation and long posterior fusion of spine. We learnt the technique and also the use of his spinal frame for surgery what I used in my spine surgeries.

Dr. Mitra also set up a Scoliosis centre in his Private Hospital and made Dr. Ujjal Debnath his assistant. Later on Dr. Debnath took the full charge of the hospital and helped to publish a book on Scoliosis by Dr. Mitra. He was a great friend of mine and convinced all other Orthopaedic Surgeons of Calcutta to send patients of Scoliosis to him to develop his method. Since 1970 we all gave up Scoliosis surgery in his favor until his death in Nov, 1995.

Cotrel in France was doing Scoliosis Surgery, unfortunately he was disabled by Paralysis due to myo-neuropathy when he had to give up surgery. His thought process on spine brought the rotational concept of Scoliosis and developed the surgery through his colleague **Dubousset,** the technique of pedicular wire fixation with rod fixation, published in 1984 and 1994. He came to Calcutta around that time and discussed about it, but we left it for Dr. R.N. Mitra to do it.

Rober Roaf discussed his concept of congenital Scoliosis and early fusion in a lecture at Guahati in a symposium around 1990 when I was present. Only after 1995 we had to do some scoliosis surgery by sublaminar wire (Luke's method) (fixation) and rectangular (Hartshill) rod fixation of spine, we did Pedicular screw fixation also.

About five years ago with the help of Dr. **Ujjal Debnath** at R.K. Mission Hospital where he started Scoliosis Surgery, he brought forward the modern methods and technique of surgery.

Dr. Dilip Kr. Sengupta, Associate Prof. in Orthopaedics at Dartmouth U.S.A. had an excellent workshop for 2 days on Pig's spine which cleared many of our concepts. He helped us at our Institution for Scoliosis surgery.

Dr. Mini Mehta of Kolkata won the Robert Jones award by her research to predict the progress of scoliosis by Rib vertebral angle. As I reached the age of 80 years till my present age of running 88 I only have a dream to establish scoliosis at BORRC through one of my consultant **Dr. Somnath Mukherjee**, who has gone for training in Scoliosis and spine to **Dr. Rajasekharan** at Coimbatore and then different centers in India to come back and establish Scoliosis Surgery in our Institution for the middle class patients with handicapped economy.

COLITIC SPONDYLITIS

Reference:

VOLUME –II
THE SPINE
SECOND EDITION

EDITED BY
RICHARD H. ROTHMAN, M.D., Ph.D.
AND
FREDERICK A. SIMEONE, M.D.

1982
W.B. SAUNDERS COMPANY
Philadelphia London Toronto
Maxico City Rio de Janeiro Sydney Tokyo

Introduction

Clinical and radiographic evidence of spondylitis has been noted in patients with ulcerative colitis and regional enteritis in a greater frequency than would be expected by chance alone.

SACROILIAC ARTHERITIS +CONDENSANS Ileii is one of the common causes of Low Back Pain in Bengal. Diagnosis is made by exclusion of other causes with normal SLR, no neuro deficit, mild rise of ESR + X-ray changes.

Local tenderness is mild. If we find these data then treat those patients by Elastic Sacroiliac Belt for S.I. joints on L.S. Brace for Lumber spine + NSAI Drugs, Doxycycline + tranquilisers for 4 – 6 weeks. It will reduce the pain by 80% in 90% of the patients. If they don't improve then MRI is done to see the canal and the disc. Psychosomatic overlay is no less important and always in our mind, mostly on females or adolescents failing to adjust in their daily life.

OVERVIEW OF COST EFFECTIVE MEASURES IN MANAGEMENT OF SPINAL CORD INJURY

By
A/Professor Douglas J.Brown
Director, Victorian Spinal Cord Service
Austin Health, Victoria, Australia

The cost effectiveness of the management of spinal cord injuries (SCI) is a difficult topic. The literature search is unrewarding. Much has been written about the cost of spinal cord injuries, particularly the health costs. Over the last ten years this literature has focussed on hospital based costs. They are not focussed on rehabilitation of the patient which occurs in the community but on achieving within hospital aims that lead to a discharge in the shortest time at the lowest costs.

When the life time costs are assessed, the actual costs of spinal cord injuries patients in the community is very large.

A couple of sample references:

1. Bagnall AM. Jones L, Richardson G, Duffy S and Riemsma R
Effectiveness and cost-effectiveness of acute hospital-based spinal cord injuries services: Systemic review
Health Technology Assessment, August 2003; Volume 7:No 19

2. Fiedler IG, Laud PW, Maiman DJ and Apple DF
Economics of Managed Care in Spinal Cord Injury
Arch Phys Med Rehabilitation, November 1999, Volume 80, Pages 1441-1449.

Severity of Injury	Average Yearly Expenses (in April 2005 dollars)		Estimated Lifetime Costs by Age at Injury (Discounted at 2%)	
	First year	Each Subsequent Year	25 years old	50 years old
High Tetraplegia (C1-C4)	$710,275	$127,227	$2,801,642	$1,649,342
Low Tetraplegia (C5-C8)	$458,666	$52,114	$1,584,132	$1,003,192
Paraplegia	$259,531	$26,410	$936,088	$638,472
Incomplete Motor Functional at any level	$209,324	$14,670	$624,441	$452,545

The National Spinal Cord Injury Statistical Center, June 2005

From the perspective of the patient and the community and from the perspective of our goal in rehabilitation, Sir George Bedbrook quoted Nichols as saying that:

> **"Spinal cord injury should be treated superlatively or not at all".**
> *Nichols, 1953*

What does this mean in terms of cost effectiveness?
I can illustrate this by an example from a spinal cord fellow from a developing country who spent some time with us learning about the management of spinal cord injury patients. He was asked to give a talk on the medical system in his country and at the end of that he was answering questions. The hospital he worked in had no real rehabilitation unit and there was certainly no specialised spinal care service in the acute hospital.
One of the staff members asked him, ***"What happens to quadriplegics?"***
His answer, palms up, shrug of the shoulders was, ***"We see them; they go home and just disappear".***

That is the equivalent of Nichols's

"Spinal cord injury should be treated .....not at all".

This is an attitude of cutting your losses. There is no further investment, the patients are not expected to be able to go home and lead useful lives where they can contribute to the community as husbands, fathers, and wives or in any other way. They expect only to be a drain on their family and the community and not expected to have a happy life. Death is one way in which suffering is diminished and others can move on. In medical terms, and perhaps for the family, this is cost effective management.

A personal experience also illustrates this. I was at a 1000 bed hospital in a developing country where we were talking about the management of spinal cord injury patients. Many quadriplegic patients failed to reach hospital.
I asked the staff, ***"How do you they manage the acute paraplegic patient?***'
They said: ***"It is very expensive to operate and we have no one who has the skills in spinal column surgery anyway, so we put them in a plaster cast and send them home".***

When asked, ***"What next?"***
They said, ***"After six weeks they come back and we take off the cast. They have lots of sores on their body so we send them home to heal them".***

They didn't usually come back. There was no rehabilitation. There was nothing else to offer anyhow as the families usually had no money. The pressure sores would usually become infected and death would follow. Another illustration of treating them "**not at all**".

The question then is what does treating them superlatively mean. We must focus on the goal of rehabilitation to answer this. The old definition of rehabilitation was the restoration of a person to the community in as near to their previous situation as possible, despite the acquired impairments. In more recent times, in many countries, the definition has been reworked to add in the possibility of returning people to the community with, in many respects, a better quality of life than before the injury. They may have better skills for the workforce through education about the use of computers or skills retraining; they may have learnt better social skills; hopefully they will have developed personal self esteem that has overridden the impairment. If they are able to go back into the workforce then, of course, they will not only earn money and be financially better off, but they will also be paying taxes and thus contributing to the overall costs of the medical aspects of spinal cord injury management. That makes SCI management cost effective. A bit of extra dedicated effort, costing relatively little may be necessary to get some people back to work and keep them there, but it can be money well spent and cost effective in direct monetary terms and also in terms of the non financial aspects of their lives.

To determine the cost effectiveness we must therefore have a broad view of what the costs to the community are outside the health care costs and we must see that changes we make in the management of spinal cord injuries patients result in a better investment return when they rehabilitate into the community. That is how we get value for the economic investment in acute medical care, hospital based rehabilitation learning and ongoing medical and equipment costs.

The most recent major attempt that I was able to find was a report by Access Economics to the Victorian Neurotrauma Initiative. This looks at patients in Australia and in particular Victoria in the year 2008. Access Economics is a major resource for Government and private enterprise and well respected for the quality of its work.

The Economic Cost of Spinal Cord Injury and Traumatic Brain Injury in Australia

Report by Access Economics Pty Ltd for The Victorian Neurotrauma Initiative

June, 2009

www.AccessEconomics.com.au

Aims:

1. **To determine the economic impact of TBI and traumatic SCI in Victoria and Australia**
2. **To estimate the burden of disease of TBI and SCI in Victoria and Australia**
3. **To compare the economic impact and disease burden of TBI and SCI with other conditions**
4. **To model the potential impact of improved TBI and SCI management strategies on the economic cost and burden of disease (cost effectiveness analysis)**

The aims of this were to evaluate the traumatic brain injury and traumatic spinal cord injury from the point of view of total economic costs as shown by the aims of the report. I will only look at the costs of traumatic SCI.

They used an incident approach and drew on various databases available throughout the country, including the Victorian trauma database. Overall there are approximately equal numbers of new paraplegics and quadriplegics each year in Australia, though in Victoria quadriplegic patients predominate. Perhaps the incidence of traumatic injuries from the road and workplace has been lowered by aggressive government legislation, law enforcement, and public education. This has led to elderly people who suffer quadriplegia from falls becoming a bigger proportion of the pool.

Calendar Year 2008
Costing – Incidence Approach

	Quadriplegia	Paraplegia
Australia	136	137
Victoria	52	36

In addition to healthcare costs they looked at, "***other financial and non financial costs such as loss of productivity and loss of quality of life***" and were able to put a dollar figure on these.

"**Productivity costs** include lost production (using a human capital approach) due to:

- lower re-employment after injury – average employment rates for patients with TBI and SCI were calculated as approximately 50% of general population employment rates based on findings from published literature. The costs were estimated using Australian Bureau of Statistics data on average weekly earnings (AWE);

- higher absenteeism (sick days) from paid work – estimated as five days for all TBI/SCI patients where either employer-paid sick leave is taken or the individuals draw down their own funds;
- reduced domestic productivity – based on the same assumptions as absenteeism from paid work, but with domestic absenteeism valued at 30% of AWE;
- premature death – where remaining lifetime earnings lost are calculated based on premature mortality due to TBI/SCI and AWE, plus a bring-forward of search and hiring costs for replacement workers.

Carer costs were estimated using an opportunity cost approach measuring the hours of informal (unpaid) care based on data from the ABS Survey of Disability Ageing and Carers (SDAC), the Victorian Disability Service Quarterly Data Collection Information System, the AIHW Commonwealth State/Territory Disability Agreement National Minimum Data Set, Access Economics (2005) and other literature, to estimate the proportion of individuals who had a carer and the total number of hours of care provided to people with TBI and SCI in 2008. The value of care was then calculated based on AWE and the average probability of employment of the carer.

Deadweight losses (DWLs) were calculated as efficiency losses from taxation revenue forgone and from welfare transfers. **Other costs** were the bring-forward of funeral costs and were minor."

Table 1

Productivity and Other Financial Costs ($Million)		
	Paraplegia	**Quadriplegia**
Australia		
Lower employment	47.8	43.8
Premature death	6.8	14.3
Other productivity costs	0.2	0.2
Subtotal productivity costs	*54.7*	*58.4*
Carers	9.1	14.6
Other	0.0	0.0
DWLs	30.0	41.5
Total	**93.9**	**112.6**
Victoria		
Lower employment	12.5	12.7
Premature death	1.8	4.1
Other productivity costs	0.1	0.1
Subtotal productivity costs	*14.3*	*16.9*
Carers	2.4	4.8
Other	0.0	0.0
DWLs	6.0	9.1
Total	**22.8**	**30.8**
Source: Access Economics		

Because the mortality rate is highest in the first 12 months, higher than average mortality rates were applied in the modelling for the first year and population average mortality rates were applied to those who survived more than one year.
Mortality rates in the year after injury were:

- 6.14% for paraplegia and 13.7% for quadriplegia

Healthcare, long term care and equipment/modifications were based on compensation data from the Transport accident Commission (TAC) Victoria.

- 36.8% of Australian and 52.0% of Victorian SCI patients were compensable
- Rehabilitation / long term health care cost, equipment/modification and long term care costs were decreased by 30% for non-compensable patients

This table shows the costs based on data from the Transport Accident Commission, the compensatory body in Victoria for road traffic injuries. As you can see the costs are enormous. When these costs are taken to the non healthcare costs and one looks particularly at the broader community costs, one sees that they are also enormous. As you can see these add quite a substantial amount to the total cost.

Table 2

Cost Items Based on TAC Data ($Million)		
	Paraplegia	**Quadriplegia**
Australia		
Health System	52.5	76.5
Aids/equipment	113.2	113.6
Long term care	109.4	500.7
Total	**275.1**	**690.9**
Victoria		
Health System	13.5	24.7
Aids/equipment	30.4	36.5
Long term care	29.3	155.1
Total	**73.2**	**216.3**
Source: TAC (2009) and Access Economics		

In order to determine disability adjusted life years, disability weights are shown in Box slide 18.
DALY = Disability Adjusted Life Years
VSLY= Value of 'Statistical' Life Years

Disability weights adopted were 0.570 for paraplegia and 0.840 for quadriplegia.

In total disability adjusted life years (DALYs) for all patients with TBI and SCI in Australia was 36,133.

Cost DALYs by VSLY ($157,795) gives a dollar value of loss of wellbeing due to TBI and SCI.

When put together one comes at a total cost of spinal cord injury in Australia is very high in relation to the number of people involved.

Table 3

Burden of Disease (DALYs and $Million)		
	Paraplegia	**Quadriplegia**
Australia	2,032	3,058
DALYs	320.7	482.5
$M		
Victoria		
DALYs	520	954
$M	82.1	150.6
Source: Access Economics		

- The total cost of SCI in Australia was $2.0 billion
  - $689.7 million for paraplegia
  - $1.3 billion for quadriplegia

Is it the total figure and what does it mean? It means that direct financial costs are high for a very small number of people and the burden of disease, the other costs of to the community, can be calculated as almost as much.

Financial Costs - $1.2 billion

Burden of Disease Costs - $803.2 million

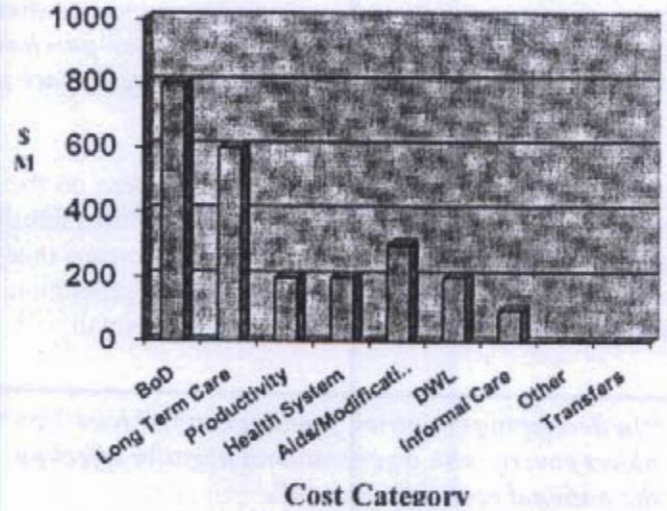
Costs are borne by:	
State Government	**44.0%**
Individuals	**40.5%**
Federal Government	**10.6%**

60% of this is covered by State and Federal taxes and the other 40% by individuals themselves. This hardly seems like treating patient at superlatively does it?

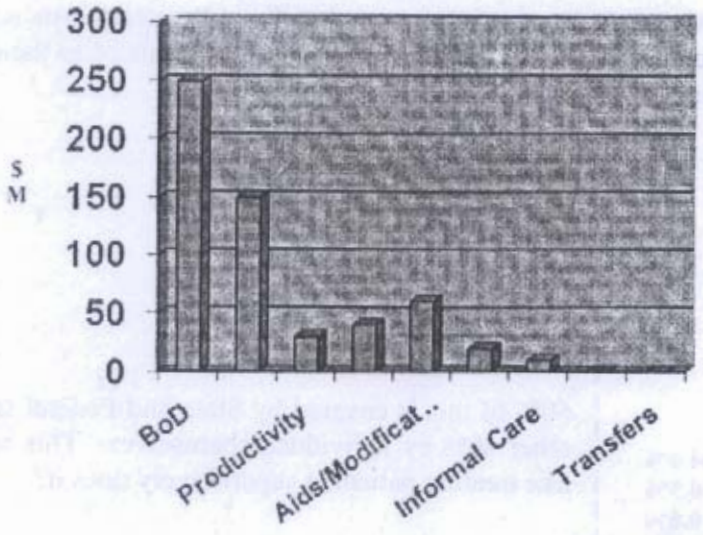
Looked at differently, one can see that the burden of disease category is in fact the biggest single cost item. When put into an individual perspective, the cost for each patient is a staggering amount of money.

Life time costs in Victoria

Paraplegia - $4.9 million
Quadriplegia - $7.6 million



These are the cost for Victoria alone, a state of 5 ½ million people. One can see that we are looking at $250 million dollars, just the burden of care costs. Are we getting value for money? Are we treating the patient superlatively?



The one cost effectiveness analysis that was done in this study was that of ***"CPAP vs no CPAP for patients with quadriplegia and sleep apnoea". The incremental cost effectiveness ratio was $16,037 per disability adjusted life years avoided.*** This is much ***less than $60,000 per quality of adjusted life year's threshold (DoHA 2003)*** and considered ***"very cost effective" by WHO standards which was less than a GDP per capital DALY averted.*** So when we are looking at cost effectiveness this is the kind of approach we have to look at to see whether the effort put into the new treatment actually delivers costs benefits.

When we look at developing countries we have no such report to go on but we are able to draw some generalised conclusions. Effectively we know that in almost all cases of spinal cord injury of moderate to severe severity the patient has a lower income after the injury than they had before. This ***lower income means that they have lower purchasing power***, i.e. consumer spending power is less. This of course has a ***negative impact on the national economic growth***.

Secondly we can say that the lower income and the increased burdens on the family lead to a loss of opportunity, especially for the children. In developing countries families can fall back into abject poverty with the loss of the major bread winner. This means that the effect is not just for one generation but has an ongoing effect into the next generation. This negative impact is experienced as a negative impact on national economic growth.

> ***"In developing countries, families can fall back into abject poverty with a generational negative effect on the national economic growth".***

Children may be forced to drop out of school in order to work to provide money to support the family. Deprived of education and the opportunity to obtain better paid employment in adulthood they will be unable to rise out of poverty and the possibility of improvement in the family's circumstances is delayed to the next generation.

> ***"Children may drop out of school to work and are deprived of education and the opportunity to rise out of poverty".***

We know that poverty does not increase national wealth. Therefore it is in everyone's interest that spinal cord injury should be prevented and the cost effectiveness of doing so is indisputable.

When spinal cord injury occurs, it is vital that every effort be made to give the patient superlatively treatment so that they can re-enter the community, obtain a job, lead a life of quality where they contribute and they are rewarded with happiness and good health. The cost effectiveness of our management is best judged in this light. The cost effectiveness of changes in management must be evaluated in order that we do not continue to pursue treatments that we believe in, but which do not actually give the patients appropriate rehabilitation back into the community.

To do this we in Victoria have been fortunate that the Government and the Transport Accident Commission have agreed to look past the hospital rehabilitation program to rehabilitation where it really occurs, in the community. Therefore we are implementing a pilot study of a **Spinal Cord Integration Team (SCIT)**.

This is an extensive, professionally supported program financed and supported by six co-operating agencies, including compensation bodies and the State Government

SCIT supports the person with the spinal cord injury to get back into their community

This is achieved by:

- Individualised service
- Identifying client goals
- Providing support to family and friends
- Being a specialised resource for existing community services
- Support for 12 months following inpatient discharge

Spinal Community Integration Team

- Program Manager
- Community Spinal Nurse
- Building Consultant
- Vocational Consultant
- Occupational Therapist
- Physiotherapist
- Exercise Physiologist
- Leisure Specialist
- Psychosocial Care Coordinator
- Sexual Health Nurse Consultant
- Peer Support Manager, Peer Support Staff & Peer Support Volunteers
- Spinal Medical Consultant

Aims:

- To enhance community integration and quality of life outcomes for Victorians with a spinal cord injury (SCI)
- To achieve optimal **independence** and **self-management** in the community setting
- To support efficient and effective transition from hospital to home.

The current pilot is being evaluated and this will enable the program to be improved to become more effective with the passage of time. Possibly we will have more results to report to you in a couple of years when we

are passed the pilot and hopefully have established a long-term program.

To be more cost effective, ***"to treat the patient superlatively"*** as Nichols suggested, we must aim for goals beyond discharge. We must focus our hospital based rehabilitation on rehabilitation in the community in a continuum of support from institution to a satisfying and productive lifestyle. This we know will have both a national benefit as well as a benefit to patients and their families.

"We must aim for goals such as higher employment rate, higher income, greater quality of life.

The Continuum of SCI Care

- ***Prevention***
- ***Acute Medical Care***
- ***Rehabilitation***
- ***Community Reintegration including income provision***

In order to be more cost effect we must look at all aspects of the continuum of spinal cord care: prevention, acute medical care, rehabilitation and community reintegration including income provision

It must be recognised that prevention is good for everyone – the patient, the family the employer and the community

- *Good for the patient*
- *Good for the family*
- *Good for the employer*
- *Good for the community*

Prevention is economically sound and is as important in developing countries as in the developed world.

Prevention is:

- cost effective
- generates productive jobs
- saves medical costs
- decreases community costs
- enables the community investment in the individual before the injury in education
- skills training and even physical fitness to be capitalised

Without prevention the individual can become lost as a productive member of the workforce and any investment in training or even in physical fitness is lost to the community.

- **Cheap/cost effective**
- **Generates productive jobs**
- **Saves medical costs**
- **Decreases community costs**
- **Enables community investment in the individual to be capitalised**

The context of the comprehensive spinal cord service there is a role for the health professionals to be involved in prevention through data collection which defines the incidence and the causes of spinal cord injury and if done properly also the location and circumstances of the injury.

In acute medical care there is a major role in prevention of spinal cord injury after an accident where vertebral column injury has not caused cord damage or the prevention of further deterioration in the person with obvious cord damage. The staff of the spinal cord service has a major interest in seeing that public education and paramedic education is optimal.

In the acute hospital, optimal medical care maximises the patient's potential for recovery. It must always be recognised that the acute management is the commencement of the rehabilitation process. The future of the patient depends upon the quality of the management from the accident scene.

With optimal medical management, the patient is in the best physical condition to undertake rehabilitation. It may begin in the acute setting with mobilisation, strengthening, balance work and endurance training. Psychological rehabilitation of the patient and family begin by the development of a therapeutic relationship in the early acute management.

Active rehabilitation begins in the rehabilitation setting. It is continued in the community and merges with community re-integration so that the patient develops a full and active life. In many ways it may be different to the past but it is also grounded in the family and community that existed pre-accident. There is often an opportunity in this process to help some people to improve their personal strengths and skills and to provide them with a better lifestyle after spinal cord injury than before.

The Spinal Cord Service can promote prevention in the wider community. The Spinal Cord Service in Dhaka in Bangladesh has developed a program to build wheelbarrows that can be sold at a subsidised cost to employers and employees who may then carry three times the load in it that they previously carried on their head.

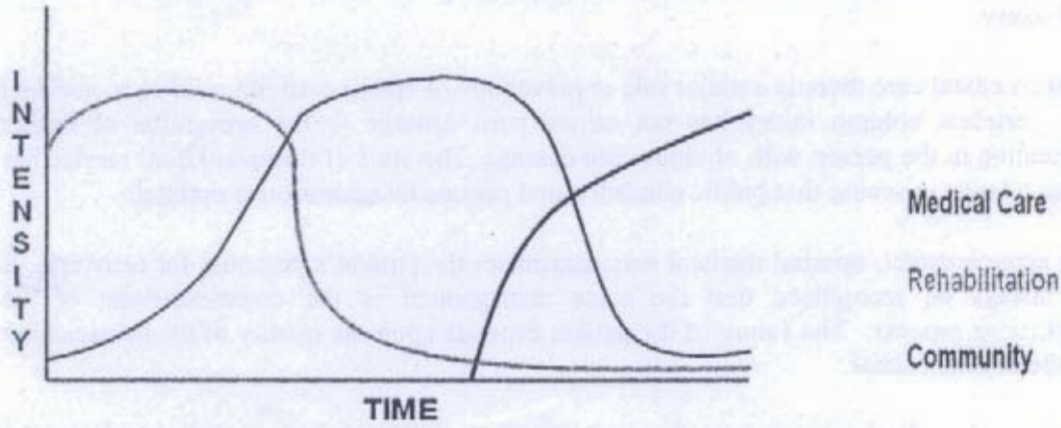
This is a device that can be used by all workers in different shifts. It is efficient for the employer because bigger loads can be carried and it is much safer for the person who does not have to carry the heavy load on their head.

This prevention initiative is a very achievable program that contributes to the national economy by providing new jobs and by cutting medical costs. It prevents family disruption, keeps the person employed and improves the family's economy.

Other prevention programs may be created outside the Spinal Cord Service such as subsidised motor bike helmets, harnesses as for coconut pickers and other programs related to specific jobs and specific circumstances that are dangerous to the worker or general public.

If we look at the patient's path from injury we see that initially there is a major medical component. This fades as the rehabilitation program takes hold. During rehabilitation the patient starts to return to the community for short periods, then for more extended periods and starts to look at employment. By discharge, inpatient rehabilitation has declined, but

community re-integration becomes the major focus of activity. Interventions at all of these points produce a cost effective outcome.



Good pre-hospital management prevents neurologic damage in those critical with unstable broken necks or backs, but no nerve damage. Good pre-hospital management prevents exacerbation of cord damage in those who are already have neurologic signs and symptoms.

Public education and paramedic training are the key elements here.

In the acute hospital, medical stabilisation of the vertebral column can prevent further damage. This can either be conservative or operative. It should be done early as soon as the patient is resuscitated before complications such as pneumonia set in.

Pre-hospital and acute medical treatment provide a foundation for the patient's future.
It is the commencement of rehabilitation by developing a relationship with the family and a set of expectations that the patient will be functioning and valuable in the community despite their impairments. By setting the scene, one can be hopeful that the patient will be motivated to taking opportunities provided as an inpatient and as an outpatient.

We must consider the rehabilitation process in the institution to be 'the school' where the patient requires the knowledge, skills and problem solving abilities to return to a healthy and active life in the community.

Rehabilitation is a process that involves transitions from inpatient to outpatient, from patient to family member, hospital to community life and this includes finding a job which is the normal life of most people in society.

- ***Transition from inpatient to outpatient***
- ***Transition from patient to family member***
- ***Transition from hospital to community life - finding a job***

A meaningful life includes work. We must not think that a discharge from hospital means that rehabilitation has been a success. The education process is designed to enable people to work. Our rehabilitation is in that same mould of schooling and should help people define a place in the working community. Sometimes this is done in a rehabilitation centre and often it is done through Government sponsored programs. The table shows some of the skills that have been taught to people during their rehabilitation at spinal cord centres in developing countries.

Job Training Programs in Spinal Rehabilitation

- *Carpet making*
- *Shoe making*
- *Small engine repairs*
- *Electrical repairs*
- *Stall managing*
- *Computer training*
- *Nursery management*

It is the responsibility of a comprehensive spinal cord service to drive optimal spinal cord management which in turn:

- drives cost savings through trauma prevention
- improves the standard of medical care generally
- improves the standard of rehabilitation
- improves the integration of disabled people into society

It should create productive jobs - jobs in prevention, in health care and jobs for disabled people.

It should decrease costs to the family, friends and relatives and to the local community where the patient becomes once again a valued and productive member.

So the drivers of these improvements and standards are the staff of the spinal cord services particularly medical staff.

The drivers are the people with spinal cord injuries and their families and friends.

The alliance between the health care professional and those with spinal cord injury is a very powerful one for effecting change.

The other drivers are those who pay. It is a function of the spinal cord service and of the patients, their families and friends to educate the Government and Compensation Agencies to achieve maximum prevention and maximum outcomes for those who suffer a spinal cord injury. Working together, these three components can not only improve the situation for the disabled, but have a positive economic effect for the nation.

NEGLECTED SPINAL CORD INJURIES

Dr. H.S. Chhabra, Chief of Spine Service & Medical Director,

Indian Spinal Injuries Centre, New Delhi

Neglected spinal injuries are defined as injuries not treated in a timely fashion and found late when options are limited. Since such injuries have not been treated in a timely fashion, they would be expected to add to the complexity of the management, have a higher incidence of complications, adversely affect outcome, require a longer hospitalisation and add to the costs. Thus the aim should be to prevent neglect and if it occurs, to manage it diligently. However despite the not so uncommon presentation of neglected spinal injuries, more so in developing countries, there are hardly any published reports on management of neglected spinal injuries and none on the rehabilitation of such injuries. We hence conducted a study to determine if neglected spinal injuries adversely affected management and outcome.

All spinal injured for whom treatment couldn't be started till 4 weeks after the injury were included in the study. The records of an equal number of SCI who presented to the definitive institution within the first day of the injury were also reviewed and results compared. Cause and duration of neglect, challenges in management of vertebral lesion, neurological deterioration, injury - mobilisation interval, incidence of associated complications in acute stage, hospital stay and cost of treatment, realignment and correction of deformity were recorded. The outcome of the study will be discussed in the talk.

RECURRENT DISC PROLAPSE

DR H N BAJAJ
SENIOR ORTHOPAEDIC AND SPINE SURGEON
HEAD OF ORTHO SPINE SURGERY
MAX HOSPITAL, SAKET AND GURGAON

Recurrent disc prolapse is the recurrence of back and/or leg pain as pain that returned after a pain-free period lasting 6 months from the initial surgery. This is corroborated by MRI findings of the presence of herniated disc material at the same level, ipsi or contralateral, at the site of operation.

Recurrent disc herniation occurs in approximately 5% to 15% of patients who undergo discectomy. Gaston and Marshall, estimated the revision rate for microdiscectomy as 4.9% after 5.25 years.

Age, gender, smoking, level of primary protrusion, duration of symptoms have no bearing on recurrence of disc prolapse.

When a patient has recurring pain, a complete workup, including a MRI, is needed to determine the cause of the pain. The possible causes of pain such as a retained disc fragment, epidural fibrosis, arachnoiditis need to be eliminated. Gadolinium enhanced MRI scanning is helpful. Stenosis, and instability need to be excluded.

In our series of re do spine surgeries, done from 2007 onwards at Max Hospital, solitary recurrent disc prolapse accounted for 10% of cases only. The majority of re do cases were because of co-existing stenosis; instability and infection were other causes.

Established recurrent lumbar disc herniation requires aggressive medical management and surgical intervention. Surgical techniques include conventional open discectomy, minimally invasive discectomy or open discectomy with fusion.

Fusion is necessary in patients with concomitant segmental instability or significant foraminal stenosis because of disc space collapse.

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Recurrent lumbar disc herniation is common following open discectomy
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Management of the vertebral lesion in ankylosing spondylitis

Patrick J. Kluger

Although the prevalence of Bechterew's Disease seems to be a bit less in Asia than in Europe, at perhaps0.6- 0.7%, and assumingly 25% of them actually suffering from ankylosing spondylitis, still about 2.5 Million should be around with the condition, in India alone.

When sustaining a spinal injury, all these patients pose specific challenges to the therapeutic team, to a different degree. They all have in common that their stiffened spine is rather brittle and fractures occur from minor traumatic impacts. The long lever arms of the ankylosed sections above and below the fracture then produce a high instability, even more as the ligaments connecting the spinal units of motion are ossified and they break more easily than they would rupture in normal individuals. Probably these factors are responsible for the finding that among subjects suffering neurological deterioration between accident and admission to hospital ankylosing spondylitis patients are over-represented (6 out of 16 in total 2007 in Germany, where the system of rescue and transport of victims from accidents is rather refined).

Due to the same reasons of long lever-arms and broken "ligaments", conservative management is highly demanding in these patients, let alone immobilisation by skull traction in cervical injuries. Therefore, and because the skin in these patients is particularly vulnerable to pressure sores by the underlying disease and also due to the drugs consumed, surgical management is the most common choice in the treatment of the vertebral injury.

Herein the surgical technique has to take into consideration both the aforementioned long lever-arms acting on the construct and also the generally very poor bone quality within the vertebral bodies of these patients. Whereas in the cervical spine lateral mass screws oftenfind good bone purchase in the posterior structures altered by the ossifying disease, pedicle screws have their limits both in the cervical as well as in the thoraco-lumbar spine. Anterior fixations are specifically compromised by the vertebral bodies' sparse cancellous bone, and often cement augmentation or the use of expanding screw is needed. Of course saving of motion units from fixation is hardly ever an objective in these cases, and multi-segmental posterior instrumentations are commonly used. However, in general, both a posterior as well as an anterior fixation should be done, if possible in the same anaesthesia, to avoid loosening of the first construct during an interval.

Another general problem in these patients' management, at least in Europe, is the prevalence of chronic alcoholism among them. From unknown pharmacodynamicreasons low-dose alcohol multiplies the pain-killing potential of the NSAR Bechterew patients take. In Europe with alcohol consumption being a rather general habit nearly all patients will find out, and many become ´-alcoholics.

Therefore prescribing a daily drink of alcohol, or Distraneurin®, is a reasonable routine in these patients to prevent syndromes of withdrawal.

From all peculiarities in Bechterew patients, there is actually only one aspect to be mentioned as specifically positive, when they are tetraplegic: Due to their stiffened costo-transversal and costo-vertebral joints, they are used to only breathe with their well-trained diaphragm, and the stiff chest prevents the ineffectiveness of the so-called "paradox breathing pattern" seen in other, especially in young tetraplegics.

If the injured A.S.-patient had developed the typical kyphoticspinal deformity prior to the accident, management is even more difficult by a big increment. To avoid further neurological damage, extrication from the accident site, transport, and handling in the hospital must happen in the pre-traumatic deformity. The use of vacuum-matrasses is an important help, and often transport can only be done in side position. Neurological deterioration has been seen during diagnostics, especially MRI, because the machine's narrower and longer openings compared to those of CT-scan machines may not allow the positioning in the pre-traumatic deformity. The patient's positioning on the OR-table is equally difficult and staff-consuming. The C-arm for intra-operative X-ray checks often cannot conveniently be placed passing under the table, and even tall surgeons have to stand on platforms to perform a posterior approach to the thoraco-lumbar spine. Where surgeons and theatre staff are familiar with positioning and operating on sitting patients, as in many neurosurgical departments, this position can be advantageous to do cervical cases.

If the patient had a substantialkyphotic deformity prior to the accident, the occasion of surgically treating the vertebral injury should be used to at least partially correct the deformity. Patients with paraplegia and uncorrected kyphotic deformity cannot sit easily in wheelchairs, they are prone to pressure sores, and they will hardly be able to rotate in bed independently. In thoraco-lumbar injuries the correction can be done by wedge resection at the fracture site. In cervical cases with pre-traumatic kyphotic deformity, correction is not only reasonable to allow the patient looking straight ahead from his/her wheelchair (keep in mind that hyper-extension in the hips as the Bechterew patient's most important way to functionally compensate for the deformity is no help while sitting). Here the correction is frequently obligational to actually perform the anterior approach required to do a posterior as well as an anterior fixation of the fracture. If the chin-chest distance is less than 8 cm, anterior approaches to the cervical spine become very difficult.In addition they carry a high risk to cause neural damage by anterior opening of the fracture, while the laminae cannot shift together due to the ossifications, and so stretch the spinal cord. Therefore the posterior part has always to be done first in cervical cases with deformity. A sufficiently wide, V-shaped interlaminar resection has to be done to allow the anterior opening without stretching the cord. After posterior fixation in corrected alignment the patient can be placed on the back for an easier anterior approach. The still quite cumbersome procedure of turning and re-positioning the patient by doing both approaches in sitting position, as mentioned above.

In all cases of cervical kyphosis correction a stretching of the oesophagus by the altered cervical alignment must be considered. Swallowing difficulties may occur and the NG-tube has to stay in place post-operatively until thorough assessment is done. In most cases NG-tube for a week and subsequently soft diet will suffice, but the need for an endoscopically inserted gastric tube also occurs.

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Lumber Spondylosis with facet Arthropathy, Asymmetrical Facets and other bony abnormalities are taken care of by Braces and Flexion, spinal exercises, NSAI drugs and Tranquilizers.

PAIN CLINIC

Sometimes these are managed in Pain Clinic by minimally invasive procedures eg. facet blocks, transpediculer epidurography + Epidorolysis, Ozone therapy of the disc.

PRESENT DAY THOUGHT PROCESS

Ref:
Spine -2
Instructional Course Lectures, Part – III
North America Spine Society
AAOS
Section – 6, Page – 197, A-13

Degenerative lumber stenosis Pathophysiology and nonsurgical treatment

Evidence-informed treatment of symptomatic lumber stenosis rests on at least three principles derived from the recent clinical studies reviewed earlier:

1) Severity of symptoms rather than spinal canal dimensions should dictate aggressiveness of treatment

2) Surgical treatment offers patients with severe pain and functional impairment more rapid short-term improvement.

3) Because up to 70% of patients with LSS have a favorable untreated or medically treated long-term outcome and catastrophic neurologic deterioration is rare, most patients should be offered a trial of medical treatment. There is no significant evidence that prolonged bed rest improves the symptoms. No evidence exists to support the use of spinal bracing to prevent episodes of low back pain. Elastic binder can provide effective short term relief. NSAIDs are the mainstay of initial treatment of degenerative lumber stenosis. Muscle relaxants may help to relieve an acute exacerbation of symptoms long term use is not recommended. Because of their side effects, narcotics should be used only for brief periods and usually in patients who cannot tolerate NSAIDs or other nonsurgical measure. Clinical trials of antidepressant drugs for the treatment of low back pain have had conflicting results. Epidural Steroid injections.

Indications for Surgery

The ideal patient has symptoms of neurogenic claudication, which includes pain, numbness, and paresthesias in the posterolateral legs and thighs associated with prolonged walking or with activities causing back extension such as walking up stairs. In the absence of instability, laminectomy remains the gold standard for treating central, lateral recess, and foraminal stenosis. Arthrodesis with pedicular fixation be performed in the setting of a decompressive laminectomy

In patients with primary lateral recess stenosis, laminotomy is an alternative to laminectomy. One or two level lateral recess stenosis without significant central stenosis, a less invasive unilateral or bilateral laminoforaminotomy is a reasonable option. The use of "fenestration" is controversial Distraction laminoplasty and expansive lumber laminoplasty are two techniques of laminoplasty that have been introduced as alternative to standard laminectomy The use of an interspinous spacer to

Complications of lumbar decompressive surgery include dural tears, nerve root injuries, infection, vascular complications such as thromboembolic events, epidural hematoma, nonunion or hardware failure following fusion, instability, bony regrowth, and adjacent segment degeneration. Research on the outcome for vertebroplasty has suggested that patients experience partial or complete pain relief within 72 hours of the procedure.

FUTURE, VISION AND CONCLUSION

* Future stands on the present. With honest effort it should always be bright with good progress.

* We should treat the patient and not the MRI or the X-ray. These are meant for the help of the clinitian to come to a proper diagnosis and decision regarding the treatment.

* We should decide the treatment according to the need of the patient concerned. Each individual patient in different part of the world and country is different. Their needs are also different.

* Our knowledge should be evidence based experience but the application should be need based.

* We should imagine to put ourselves in the same position as the patient is living, to guide us for our communication and behavior to the patient.

* Please excuse me because old people are always fault finders.

* You are great, our future path finder, I adore you all.

Thanking you.

Exercise prescription and bracing in osteoporosis

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The ideal treatment of osteoporosis is essential to maximize bone density and minimize fracture risk. Although, pharmacological agents represent the cornerstone of treatment of such clinical entity, but most of our patients cannot, or will not, comply with medication regimens because of their potential adverse effects such as osteonecrosis of the jaw when bisphosphonates are used, unaffordable cost, prolong duration of treatment and limited data on long-term effects has further drawn a lot of scepticism. However, non-pharmacological management approaches such as exercise programs and bracing are often overlooked as an integral component of a comprehensive treatment protocol to complement for the treatment of osteoporosis.

Exercise programs, such as resistance training, weight bearing, and core stability, confer beneficial effects on the osteoporotic individual and understood to have larger gains in bone mineral density noted in combination than those achieved by medical treatment alone. It is also seen that caregiver and patient education about the disease risk are critical in improving compliance. The exercises overall help to increase in strength, flexibility, and balance, with reduced risk of falling and it is also documented that increase bone mineral density (BMD), with larger changes seen in those patients who undergone exercise and pharmacologic treatment both than pharmacologic treatment alone.

Braces may achieve similar effects in the lumbar spine, and hip protectors appear to offer protection to the individual at risk for hip fracture. The thoraco-lumbar braces are commonly prescribed for osteoporotic patients with vertebral compression fractures. The traditionally used braces are Jewett and cruciform anterior spinal hyperextension (CASH) braces are rigid hyperextension braces and these rigid braces found to be constricting and unacceptable. The other alternatives include the posture-training support brace and vest, both with weights, as well as the Spinomed® brace would be discussed through this paper.

The role of non-pharmacological interventions is particularly critical in patients who cannot, or will not; take anti-osteoporotic medications and thus exercises and orthotic interventions considered alone to have a significant role in minimizing fracture risk. As considerable debate surrounds the ideal pharmacologic algorithm, it is likely that non-pharmacologic interventions will have a more definitive role in future treatment considerations for both reduction in fracture and promote bone mineralisation.

DEVLOPMENT OF A THERAPUTIC AND DIAGNOSTIC PROTOCOL IN CHRONIC LOW BACK PAIN : A PROTYPE

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ABSTRACT:

Objectives:

To develop a diagnostic and treatment protocol for chronic low back pain due to involvement of nerve root, disc and facet joint by differential intervention.

Methods:

This is an open level prospective study, involving patients with chronic low back pain of more than 6 weeks. We at NRS developed a protocol which included clinical assessment with imaging and intervention. On concurrence of diagnosis made by imaging and clinics we went for intervention to treat the condition with components of NRS Cocktail. Pre-intervention assessments were done and followed up at specific intervals after treatment. Results were analyzed to see how the NRS Protocol and cocktail influenced disease diagnosis and treatment of the selected cohort.

A total of 32 patient data were analyzed over a period of 6 month. Assessment was made pre intervention (0), at 3 week (1), at 3 month (2), at 6 month (3). Pain was assessed by Visual analogue scale or VAS .Paired T test was employed to analyze results. Paired {VAS0-VAS1 (p value=0.000), VAS1-VAS2 (p value =0.557), VAS2-VAS3 (p value=0.536)} data showed a very significant reduction in pain in the first visit after intervention (3 week) and maintenance of this reduction up to end of study (6 month). Disability was assessed by Oswestry Disability Index (ODI) and paired T test, when employed, showed similar trends {ODI0-ODI1 (p value=0.000), ODI1-ODI2 (p value =0.355), ODI2-ODI3 (p value=0.212)}.

Conclusion:

This protocol was able to diagnose and treat chronic low back pain due to facet, nerve root and disc in a very significant manner

Key Words:

Chronic low back pain, Protocol, Prototype.

Surgery for unreduced cervical facetal dislocations - Anterior/ Posterior/ Combined – Our experience of 19 patients.

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Introduction: Sub axial spine dislocation with locked facets is common in cervical injury. The locked facets include unilateral and bilateral types. Different successful closed reduction rates have been achieved between unilateral and bilateral types by using rapid skull traction, which was commonly used to reduce the cervical dislocation. If traction does not reduce the dislocation completely, then operative reduction is imperative followed by fixation and fusion. The choice of approach is controversial. We present our experience.

Materials and Methods: A total of 19 patients with cervical dislocation with locked facet due to cervical injury treated by skull traction and operation from 2001 to 2009 were reviewed. There were 2 cases of complete cord injury, 8 cases of incomplete cord injury, 6 cases of only radiculopathy and 3 cases without any neurodeficit. Duration between injury and traction was 16 days average ranging from 1 to 58 days. All patients underwent X-ray/MRI/CT scan. Average of 2 days of traction was given ranging 1 to 4 days. The issue of reducibility and approach for fixation was compared statistically. Patients who were reduced successfully underwent anterior cervical discectomy and fusion at the injured level, and those who failed in closed reduction received posterior open reduction and fixation along with supplementary anterior cervical discectomy and fusion with fixation. (ACDF). All patients were followed up for atleast one year with average duration of follow up being 45.84 range 12 months to 108 months.

Results: Our series showed reduction of bilateral to unilateral dislocation in all cases but complete reduction was not achievable. Unilateral facetal dislocations reduced by traction in about 29% cases. No patients underwent neurological deterioration. All patients with radiculopathy improved completely, patients with incomplete cord lesions improved by 1 to 2 grades and patients with complete cord lesions showed no improvement .Around 90% patients fused within one year.

Conclusion: In patients with successful closed reduction only anterior decompression and fixation was possibly enough. If un-reducible by closed means then open reduction via posterior approach involving partial/full facetectomy and 360 degree fusion with instrumentation is required.

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Tubercular atlantoaxial instability: is surgery necessary

Agnivesh Tikoo*, Saumyajit Basu, Jay Deep Ghosh, Farid H Malik, Mantu Jain.

Introduction: STUDY DESIGN:. Retrospective review of 14 cases.
OBJECTIVE:. To evaluate the management strategies and complications tubercular atlantoaxial instability and compare with the literature. Tuberculosis of the craniovertebral junction is extremely rare and atlantoaxial instability in tuberculosis patients is often missed. The diagnosis is often difficult. Management of associated atlantoaxial instability, with regard to non operative and operative therapy, when to switch to later on timing and method of stabilization, is controversial. Neither is the long term sequele of nonstabilised tubercular atlantoaxial instability known.

Materials and Methods: We report 14 cases of Atlantoaxial instability in tuberculosis patients. Prominent manifestations of the disease included either or in combination neck pain and stiffness, swelling of the retropharyngeal soft tissues, lower cranial nerve involvement, quadriparesis, osteolytic erosions. Seven patients had acute presentation. The atlanto axial instability was diagnosed and graded according to Lifeso's grading. Eleven cases (79%) were of Lifeso grade2 and 3 (21%) were Lifeso grade 3. All patients received antituberculous drug treatment for 12 months. Eleven patients were managed conservatively of which 8 (57%) underwent transoral aspiration, and 3 (21%) patients underwent only posterior fusion. Aspiration was done in cases of significant abscess confirmed clinically and on MRI. Seven patients were initially treated with skull traction. The operatively managed cases were all of Lifeso grade 3 patients with gross instability and the underwent occipitocervical fusion with Ransford loop and wires.

Results: Follow-up averaged 37 months (range, 12–64 months). No patient deteriorated neurologically. All patients had symptomatic improvement. Aspiration revealed abscess only in 5 cases. All patients improved, with mean improvement in Nurick grading of 1.81. Even patients with spinal cord signal intensity changes on magnetic resonance images showed improvement. In patients treated conservatively we could demonstrate reformation of odontoid and there was no residual instability in healed cases which were treated conservatively.

Conclusion: Although tubercular atlanto axial dislocation is a rare disease, the outcome of treatment is good. Antituberculous drug therapy remains the mainstay of treatment after confirming the diagnosis. Surgery should be reserved in cases where diagnosis is in doubt and there is initial severe or progressive neural deficit with/without respiratory distress in presence of documented mechanical compression and documented dynamic instability, deformity following failure or contraindication to conservative therapy. The surgical management options include transoral aspiration/decompression with or without posterior fusion, depending upon the presence and persistence of severe atlantoaxial instability (Lifeso grade 3). In majority of cases of tubercular atlantoaxial instability can be treated conservatively and they have good prognosis with no residual instability.

Disclosure of Interest: None Declared

ABSTRACT

ROLE OF REHABILITATION FOR OSTEOPOROTIC SPINE

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Osteoporosis is a skeletal disorder characterized by low bone mass and microarchitectural disruption. There is substantial evidence that the natural history of osteoporosis can be modulated by agents which in turn decrease the risk of fracture. Rehabilitation of osteoporosis requires both pharmacologic and nonpharmacologic interventions both for the prevention and management of osteoporosis as well as its complication osteoporotic fractures.

Trabecular nature of the bone, large surface area etc. make vertebral body especially susceptible to fractures from even trivial stresses. So, the rehabilitation of osteoporotic spine should incorporate preventive rehabilitation with the aim to reduce fractures in the form of lifestyle changes, adequate calcium-vitamin D intake, avoidance of certain medications, regular weight bearing exercises etc. to keep the osteoporosis to as minimum as possible and activity modifications, environmental modifications, weight bearing exercises, balance exercises etc. to reduce the risk of fall and associated fractures.

Till very recently management of osteoporosis meant treatment with pharmacologic agents only while nonpharmacologic therapies were used solely for the prevention of osteoporosis and related fractures. But in the last decade more evidences came out conclusively supporting the positive role of therapeutic exercises as a treatment modality in osteoporosis. Their role has been substantiated even using BMD as the outcome assessment tool. Moreover supporting evidences are there to believe that combination of pharmacologic and nonpharmacologic therapies is actually superior to either of them when used alone in treating osteoporosis. So the success of the rehabilitative management of uncomplicated osteoporosis depends on the balance of this combination.

Rehabilitation of osteoporotic spine complicated with vertebral fractures requires relative rest, bracing, analgesics, intranasal calcitonin, bisphonates, structured therapeutic exercise programme etc. for both pain control and prevention of further complications and extension of osteoporosis. Considering the limited indications and pitfalls of surgical interventions in osteoporotic compression fractures of the vertebral bodies, nonsurgical rehabilitation remains the mainstay of management in osteoporotic spine complicated with vertebral fractures.

DR. G. SANGONDIMATH

A RARE CASE OF PARAPERESIS DUE TO L5-S1 DISC PROLAPSE

ABSTRACT

Introduction

Intervertebral disc prolapse is one of the most common problems encountered in day-to-day clinical practice. L5-S1 is the second most common disc prolapse to be encountered. It commonly presents with radiculopathy and weakness of the plantar flexors. Here we present a case L5-S1 disc prolapse leading to paraperesis.

Material and methods

A 46 year old male patient presented with paraperesis with acute urinary retention. He was thoroughly evaluated and treated.

Case report

A 46 year old male patient presented to our institution with history of radiculopathy since one year and paraperesis with acute urinary retention since 2 days. His examination revealed weakness in his all muscle groups of bilateral lower limbs with absent perianal anaesthesia and voluntary anal contraction. MRI revealed large L5-S1 migrated extruded disc. Rest of the spine MRI and brain MRI were normal. He underwent L5 laminectomy and discectomy of L5-S1.

Result:

At resent follow up his lower limb power has improved and able to self-void.

Conclusion:

A large migrated disc can cause tethering effect on the cauda equina and cause paraperesis due to traction effect.

MANAGEMENT OF C6 AND C7 CERVICAL SPINAL INJURIES BY ANTERIOR APPROACH-OUR EXPERIENCE

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Seventeen cases of C6 andC7 cervical spinal injuries have been operated by anterior approach. Male is to female ratio was 14:3. Mean age of presentation 32 years. Only 2 cases were above 50 years of age. Outcomes of the cases were studied.

MANAGEMENT and outcome of lumbar spondylolisthesis-OUR EXPERIENCE

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Twenty three cases of lumbar spondylolisthesis were operated by posterior midline approach. Fifteen cases belonged to grade II Rest were grade III. Outcome of the cases was studied.

A COMPARATIVE STUDY OF POSTERIOR APPROACH(TRANS-PEDICULAR) VS ANTERIOR APPROACH (TRANSTHORACIC) FOR WEDGE COMPRESSION FRACTURE OF THORACO-LUMBER VERTEBRA .

DR PARTHASARATHI DATTA, CNMCH KOL.

INTRODUCTION:IN THORACO LUMBER WEDGE COMPRESSION FRAC. BOTH TRANSPEDICULAR(POST) AND TRANSTHORACIC WITH OR WITHOUT RETROPERITONEAL APPROACH (ANTERO LATERAL) ARE ADOPTED. PREVIOUSLY WE WERE ADOPTING TRANSPEDICULAR APPROACH .BUT FOR LAST FEW YEARS WE HAVE BEEN ADOPTING TRANS THORACIC WITH OR WITHOUT RETROPERITONEAL APPROACH FOR THESE TYPE OF FRAC. THE RESULTS SHOW THAT THE ANTERIOR PROCEDURE GIVES BETTER OUTCOME IN TERMS OF:

1)CORRECTION OF KYPHOTIC DEFORMITY,

2)BLADDER AND BOWEL CONTROL,

3)MOTOR,SENSORY IMPROVEMENT IS AT PER AND SOMETIMES MORE THAN WITH THE TRANSPEDICULAR APPROACH.

MATERIALS & METHODS :IN A SPAN OF 5 YRS FROM JUNE 2005 -JUNE 2011 WE HAVE TREATED 46 CASES OF TRAUMATIC WEDGE COMPRESSION FRAC.IN 17 CASES, ANTERIOR APPROACH WAS ADOPTED AND IN REST, POSTERIOR APPROACH WAS DONE.

RESULTS:AMONG THE 17 CASES OF ANTERIOR APPROACH, 16 PATIENTS HAD IMPROVEMENT OF POWER TO THE LEVEL THAT THEY STARTED WALKING WITHOUT SUPPORT AND THE REMAINING ONE PATIENT HAD IMPROVEMENT OF LOWER LIMB POWER BUT CANNOT WALK WITHOUT SUPPORT IN A SPAN OF 4 YRS FOLLOW UP.AMONG THE 29 PATIENTS OF POST. APPROACH, 10 PATIENTS HAD IMPROVEMENT OF POWER OF LL TO THE LEVEL THAT THEY CAN WALK WITHOUT SUPPORT, 15 PATIENTS ARE BED BOUND AND 4 PATIENTS HAVE PARTIAL IMPROVEMENT OF POWER THAT THEY CAN WALK WITH SUPPORT.

CONCLUSION:IN THIS SERIES OF THORACO-LUMBAR SPINAL INJURY ,DECOMPRESSION AND INSTRUMENTATION THROUGH ANTERO-LATERAL APPROACH POSES BETTER RESULT THAN POSTERIOR APPROACH ALONE.

Title : Experience of Harms fixation for C1 C2 instability in 12 patients

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Subject :We present our experience of 12 cases of C1 C2 instability surgically treated with Harms fixation at our centre. We retrospectively analyzed the data of patients operated at our centre for last two years for C1 C2 instability due to trauma,infection and other reasons. We outline the basic principles of Harms fixation and how it outscores over transarticular fixation of C1C2 in our patients.

Type of presentation : Oral

Would you like your presentation to be considered for Gold Medal Award : Yes

Submission Of Abstract For ISSICON 2011 Kolkatta

Title : Spontaneous Epidural Cervical hematoma , a masquerader

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Abstract : Spontaneous spinal epidural hematoma (SSEH) is a relatively rare disease. Its incidence as estimated by Holtas et al was 0.1 per 100,000 people. Spontaneous epidural cervical hematoma can present as paraplegia, quadriplegia depending on the level of lesion. We present a case of 81 year old lady who presented with complains of neck pain with hemiparesis.MRI was done which showed a mass in cervical spine iso intense on T1 and T2. Differential diagnosis of tumor, spontaneous epidural hematoma was made. Urgent posterior
decompression was done and hematoma was found which was evacuated.
Suspicion for this rare entity should be high in elderly patients who present with spontaneous weakness even if there are no risk factors.

Type Of Presentation : Oral/Poster

Would you like your presentation to be considered for gold medal award: Yes

Surgery for Pressure Ulcers Improves General Health and Quality Of Life in Patients with Spinal Cord Injury

Presenting Author: Dr. Roop Singh

ABSTRACT:

Study Design: Prospective clinical study.

Background: Pressure ulcers interfere with the rehabilitation process in patients with spinal cord injury (SCI) and are a significant deterrent to participation in activities that contribute to independent, productive, and satisfying life.

Objective: To evaluate the effect of surgery for pressure ulcers on general health and quality of life inpatients with SCI.

Setting: Tertiary care center in northern India.

Methods: Various types of flap surgery were performed on 30 patients with SCI and 32 pressure ulcers (stages III and IV). Outcome was evaluated using general improvement in health (hemoglobin, serum proteins, and general well-being), patient satisfaction, and global quality of life scores (according to the visual analog scale).

Results: At admission, the mean values of global quality of life, hemoglobin, serum albumin, and total serum proteins were 50.15 (range, 30–65), 8.75 g/dL (range, 6–12 g/dL), 3.12 g/dL (range, 2.9–4.3 g/dL), and 5.21 (range, 5–6.2 g/dL), respectively. At 6-month follow up, mean values of global quality of life score, hemoglobin, serum albumin, and total serum proteins were 87.36 (range, 44–96), 10.85 g/dL (range, 8.2–13.5 g/dL), 3.89 g/dL (range, 3.2–4.5 g/dL), and 6.43 g/dL (range, 5.85–6.70 g/dL), respectively. The overall rise in quality of life scores, hemoglobin, serum albumin, and total serum proteins was statistically significant. Most of the patients (76.7%) reported improvement in subjective well-being, and 83.3% were satisfied with the ultimate outcome of the surgery.

Conclusion: Results suggest that surgery for stages III and IV pressure ulcers offers the greatest benefit to the patients in terms of improvement in general health (anemia, hypoproteinemia, and general well-being) and quality of life.

Published in: J Spinal Cord Med. October 2010; 33(4):396–400

Decompressive surgery for dorsal / dorsolumbar myelopathy due to Ossified Ligamentum Flavum (OLF)

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Background: Ossification of the ligamentum flavum (OLF) is a rare entity most commonly described in the Japanese patients. It has been associated with skeletal fluorosis, trauma, DISH, ankylosing spondylitis, diabetes, hemachromatosis, and hyperthyroidism. OLF usually presents with myelopathy in the setting of thoracic/thoracolumbar involvement and neurogenic claudication due to lumbar involvement.

Methods: Of the 16 cases that presented with OLF from 1999 to 2009, 11 patients presented with dorsal or dorso-lumbar involvement and had signs of compressive myelopathy. We reviewed the results of decompressive surgery of these 11 patients. En-block laminectomy was done in 6, laminoplasty was done in 3 and conventional laminectomy was done in 1 patient.

Results: 11 patients (7 male/4 female) with an average age of __54.6 yrs_ were followed up for an average of ___3.2yrs_ (range – 9months to 10 years). Neurological assessment was done by the Japanese Orthopaedic Association (JOA) scores and Frankel grades. One patient who was treated by laminectomy alone deteriorated post operatively and became paraplegic. All the other patients treated by either en bloc laminectomy or laminoplasty recovered neurologically and had significant improvement in their JOA scores. **(improvement in JOA score by at least 1.5 points)and Frankel grade was improved by at-least one grade.**

Conclusions: We conclude that in comparison to conventional laminectomy, laminoplasty or en-block laminectomy is safer and more rewarding in case of symptomatic OLF patients presenting with myelopathy. Its important to be aware of deterioration if one attempts a conventional laminectomy in this relatively rare condition.

*Presenting Author.

Percutaneous C-arm guided wide bore needle biopsy for intra osseous spinal lesions.

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Introduction: Adequate treatment of spinal lesions requires formulation of diagnosis — best achieved by a tissue biopsy when all attempts at diagnosis fail by non-invasive methods. More often these lesions represent the disease process that originated elsewhere. Percutaneous CT guided Fine Needle Biopsy is technically difficult in intra-osseous lesions leading to frequent inconclusive results and hence the necessity of wide bore needle biopsy. The procedure can be done under Local Anaesthesia with or without sedation.

Material and Methods: Retrospective analysis of data of those patients who underwent a percutaneous transpedicular biopsy at our hospital was done. All patients had a bony lesion in a vertebra (thoracic, lumbar, saccrum) without a soft tissue component around the bone and neurodefecit.

Results: Out of 25, there were 13 cases of malignancies (52%), 6 cases of tuberculosis (24%), 2 cases of Osteoporosis (8%) and biopsy was inconclusive in 4 (16%) cases. Of the 13 malignancies, 8 cases were of metastasis (61.5%), 4 cases of plasmocytoma (30.7%) and 1 case of lymphoma (7.6%). The 8 cases of metastasis histologically were secondary carcinomas in 6 (75%) and, papillary carcinoma and adenocarcinoma in one (12.5%) each. Therefore positive diagnosis was achieved in 21 out of 25 i.e. 84% of cases (adequacy).

Conclusion: Percutaneous biopsy under fluoroscopic guidance by transpedicular approach is quite safe and gives high adequacy (84%) without significant complications that are associated with open and paraspinal techniques.

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THE EFFECT OF MODES OF INSTRUCTIONS: VIDEO VERSUS VERBAL ON TRAINING OF WHEELCHAIR CURB NEGOTIATION IN SPINAL CORD INJURY

Jaskirat Kaur, Shefali Walia

Background and purpose: The principles of motor learning have been used in neuro-rehabilitation for the learning and re-learning of a skill. As dependence on wheelchair is an important part of daily life in majority of persons with spinal cord injury an effective method of training wheelchair skills is important. Curb negotiation is an important skill required for community participation. The purpose of this study was to evaluate the effects of video and verbal modes of instructions on training of curb negotiation.

Methods: 30 subjects with paraplegia were recruited into three groups randomly. Group one received video instructions and group two received verbal instructions and Group three received video and verbal both for ascending 10cm curb, descending 10cm curb .Subjects were given a maximum of five day training sessions. Each task was trained for 20min daily, until passed. Total training time as well as training time for each task was recorded. Success rate for both the groups was also calculated.

Results and Conclusion: The video instruction group required significantly less training time as compared to the verbal instruction group for training of curb negotiation. However, the success rate for both the groups came out to be 100 percent.

Neural plasticity in rehabilitation—hope for the 'not so hopeful'

Swati Singh, Ruby Aikat

Objectives: To study the effect of NMES on less affected hand for improving functions of the more affected hand in incomplete SCI.

Methods: 30 subjects (C5-C8, ASIA B,C,D), 20-50 years, were selected for the study. Subjects with severe spasticity (Modified Ashworth Scale grade 3) and moderate to severe depression (score 11-21 on Hospital Anxiety & Depression Scale) were excluded. Subjects were tested on Box and Block Test (B&B) to determine the 'less' and 'more functional hand'. Subjects were then randomly assigned to one of 3 groups; **Group 1** received NMES (on thenar muscles) + conventional therapy on both hands simultaneously with the activity like pegboard (**bimanually**). **Group 2** - NMES+ conventional therapy on less functional hand with pegboard activity with the **same hand only**. **Group 3** (control group)- conventional therapy only, for both the hands. Intervention was given 5 days/ week for 3 weeks; 30 mins per session. B&B and SCIM III were assessed at pre and post intervention.

Results and discussion: ANOVA and Kruskal- Wallis tests showed that the three groups were homogeneous in age, duration of injury, pre-intervention readings of B&B and SCIM. Results showed a significant improvement of hand function and SCIM scores in group 1. For group 2, significant improvement was seen in hand functions only. Wilcoxin Signed Rank test showed that group 1 had the highest improvement, followed by group 2 and least improvement in group 3.

Conclusion: Rehabilitation efforts, including NMES and functional training, should be targeted on the opposite side as well, and not only on the affected side as is conventionally given. This experimental study proved that neural plasticity mechanisms should be capitalized upon when giving rehabilitation services to SCI subjects, for getting best possible results.

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Participation following Traumatic Spinal Cord Injury and its correlation with Self-Rated health and Life Satisfaction

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Participation is a fairly new term introduced by WHO 'International Classification of functioning, disability and health' (ICF). People with Spinal cord injury represent a wide range of disabilities and ages, but knowledge of the relationship between their participation in life situations, self-rated health and life satisfaction is very limited. Research has shown that participation, self-rated health and life satisfaction are affected in people with Spinal cord injury.

Purpose: To increase understanding of the relationship between participation, self rated health and life satisfaction as it has central importance in designing of rehabilitation services and may enable rehabilitation professionals' to improve the outcome of their service.

Method: A total of 30 Spinal cord injury subjects living in the community were approached. Those who agreed to participate in the study completed two questionnaires regarding participation and life satisfaction and a single-item 5-point scale on self-rated health. **Outcome Measures:** Impact on Participation and Autonomy (IPA), Satisfaction with Life Scale (SWLS) and Self-Rated health (SRH)

Results and Conclusion: The subjects' participation in the five domains of the IPA was significantly correlated with their satisfaction with life. The subjects' life satisfaction and self-rated health decreased with increasing frequency of problems in participation. The results emphasize the importance to focus on severe problems with participation in order to optimize self-rated health and life satisfaction during rehabilitation after Spinal cord injury.

RELATIONSHIP BETWEEN SHOULDER PAIN AND HAND GRASP POSITION DURING MANUAL WHEELCHAIR PROPULSION IN TETRAPLEGICS

Stuti Sehgal*, Swati Malik, Ankur Mittal, Ruby Aikat

*ISIC Institute of Rehabilitation sciences, Delhi.

Background & Purpose: Shoulder pain is highly prevalent among persons with spinal cord injury using manual wheelchairs. The majority of propulsion research is focused on the able-bodied and paraplegics. The purpose was to find relationship between shoulder pain and hand grasp position during manual wheelchair propulsion in tetraplegics.

Methods: Correlation study was done on 20 lower tetraplegics, from Indian Spinal Injuries Centre, who used manual wheelchair for mobility. Subject's shoulder pain and different grasp position for forward, backward propulsion and rotation were recorded. Outcome measures: Wheelchair User's Shoulder Pain Index (WUSPI), upper limb joint ranges (electrogoniometer), and wheelchair hand grasp position.

Results: Correlation was found between subjects' WUSPI item score, upper limb joint angles and different grasp positions. Significant correlation was found between shoulder pain with positions of shoulder (r= 0.799) and elbow (r=-0.703), during wheelchair backward propulsion. Non significant association was found between shoulder pain and position during wheelchair rotation ipsilateral to the pain side (r= 0.239) and significant association during wheelchair contralateral rotation (r= 0.486). Regression showed posterior grasp position (shoulder and elbow) for wheelchair backward propulsion was a good predictor of shoulder pain.

Conclusion: Wheelchair grasp position is related to shoulder pain in tetraplegic manual wheelchair users.

Keywords: Spinal cord injury, shoulder pain, wheelchair mechanics.

Paper and Abstract:

Title: Epidemiological Study of Incidence of Backache in School Children vis - a - vis Weight of School Bag and other LifeStyle Factors.

Authors: Dr Virinder Singh Gogia (Presenter) and Dr Deepak Kumar

Abstract: An epidemiological study is being undertaken in Chandigrh school to determine the incidence of backache among school kids vis-vis weight of school bag. Other physical parameters, height, weight etc of the children and lifestyle factors like physical activity, postural habits during prologed constant posture activities, duration of such activities, type of uniform footwear, seating, bag carrying style are also being considered. In this interim report of Phase-1 of the ongoing study, data will be presented on standard 9th and 10th students corresponding to age range 14-15 years.

Presentation Mode: ORAL or POSTER as per assessment of the Organizing Committee/Scientific Sub-committee.

As per my Institute rules I am sponsored to attend a Conference only on approval of scientific paper for presentation or on invitation for an invited talk or chairing a session. Hence I would request that the decision on acceptance (or rejection) of my paper may please be intimated at your earliest convenience. (I am late in submission and do take responsibility for the same).

Please reply back with answers to my concerns at 1 & 2 above, preferably with decision on my paper so that I may apply for necessary permissions to the PGIMER authorities and also remit the registration fee for the Conference and/or Workshop.

Thanks very much.
Regards

Dr VS Gogia

Dr Virinder Singh Gogia
M.B.B.S., D.Orth., D.N.B.(P.M.R.), M.N.A.M.S.
Assistant Professor
Dept. of Physical & Rehabilitation Medicine
PGIMER

Title of Presentation - "Effective use of peer counseling to facilitate life long adjustment of persons with SCI in developing countries."

Presenting Author - Shivjeet Singh Raghav

Department - Department of Rehabilitation

Institute - Indian Spinal Injuries Centre
Sector – C, Vasantkunj ,
New Delhi - 110070 , INDIA

Audio Visual Requirement : ** LCD projection - Power Point Presentation
Type of presentation Oral Poster Oral / Poster - Oral

Abstract – The ideal approach to holistic comprehensive rehabilitation includes equal attention to both the psychosocial and the physical aspects of care. Various developing countries in the Asian Region providing treatment and rehabilitation service have different approaches to accomplish this goal of addressing psychosocial needs of the individual and family. Some of these models may include a complete mental health rehabilitation team that employs the services of a psychiatrist, psychologist, social worker and peer counselor. Other centers may have one or more of these professionals. It is important that in a comprehensive rehabilitation program, psychosocial issues of the individual and family must be addressed, so as to achieve better life long adjustment. It has been proved that attention to psychosocial issues results in improved quality of life and successful community re-integration due to better adjustment.

The objectives of the presentation would be to discuss the efficacy of a peer counselor in facilitating the adjustment of an individual with SCI. Specifically, presence of a peer counselor results in better rehabilitation outcomes, fewer secondary complications, improved adjustment to injury, less psychological distress, improved independence, reduced substance abuse and increased motivation for vocational or educational opportunities. Also improved marital relationships, sexual functioning and interpersonal relationships.

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National Institute for the Orthopaedically was established in 1978 to ensure the betterment of Rehabilitation services of Physically impaired persons, Research and Human Resources Development, standardization of aids & appliances and to promote their manufacture & distribution in India.

A. Human Resource Development

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DNB (PMR), Master & Bachelor in Physiotherapy, Occupational Therapy and Prosthetic & Orthotics, PGDDRM, Post Basic Diploma in Ortho & Rehab. Nursing,M.Sc.Nursing(Ortho&Rehab) Diploma in Community Based Rehabilitation, Diploma in Tool & Die Making, Certificate in CAD-CAM.

• Short Term Programs

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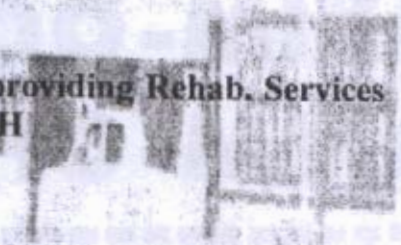
B. Rehabilitation Services

- **Institutional services- Medical & Surgical therapeutic, assistive aids/appliances, Geriatric Clinic, socioeconomic rehabilitation facilitation & employment registration etc.**
- **Outreach Extension Programs-Through Camps and Regional Centers (Dehradun & Aizwal)**
- **Community Based Rehabilitation**
- **Composite Regional Centre, Patna providing Rehab. Services under administrative control of NIOH**



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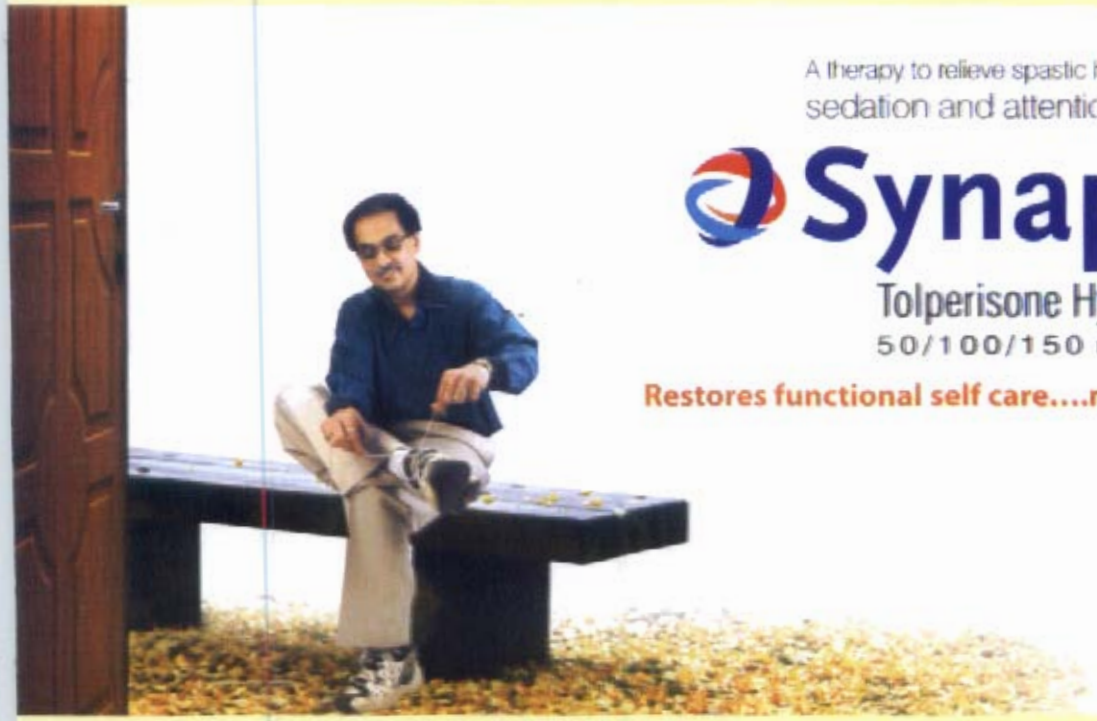

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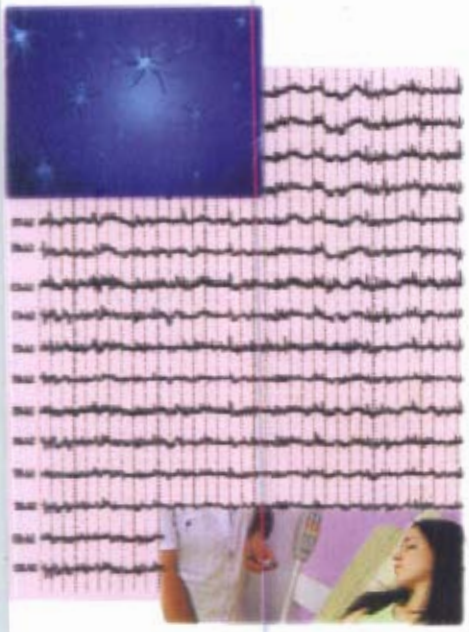

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