

**** ailment not to be treated ****

Egyptian Physician 2500 BC

F. Selmi

Northwest Regional Spinal Injuries Centre
Southport

1 year post injury survival

1st World War 10 %
2nd World War 90%

Sir Ludwig Guttmann
Stoke Mandeville Hospital



- 1. Systemic Disorder
- 2. Specialist Centres

Incidence:

World wide 10 - 20 / million

Age: 20- 30 & 70 years

Sex: 4 : 1 male/ female

Causes:

Traumatic 75%

RTA 45%
Accidental falls 34%
Sporting injuries 15%
Assaults 6%
Other 5%

Non Traumatic 25%

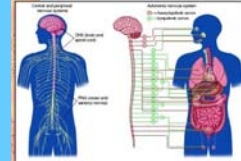
Congenital - Spina Bifida
Neoplastic - Met s tases
Infectious - Tr Myelitis,
TB, Abscess
Vascular - AVM
Iatrogenic - Aortic Aneur ysm
Degenerative- Disc

Outcome of Spinal Injury:

Vertebral Column Damage



Spinal Cord Damage



Somatic
Physical Disability

Autonomic (Systemic)
Visceral Disability

Spinal cord injury:


Spinal shock
(Complete loss of, power, sensation and reflexes)

Complete / Partial loss Sensation & Power

<p>Damage at cord level above L1 (Upper Motor lesion)</p> <ul style="list-style-type: none"> Increased tone Spinal / Autonomic reflexes exaggerated 	<p>Damage to Nerves below L1 (Lower Motor Lesion)</p> <ul style="list-style-type: none"> Flaccid paralysis Spinal / Autonomic reflexes absent
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Affects most visceral systems in the body
Higher the level of injury more profound the effects

Evaluation of Spinal cord Injury

<p>Level of Injury</p> <p>Quadriplegia (Cervical) paralysis in all 4 limbs</p> <p>Paraplegia (Thoracic&Lumbar) Paralysis of trunk and lower limbs</p> <p>Cauda Equina(Lumbar & sacral) loss of visceral and lower limb reflexes</p> 	<p>Severity or Grade of Injury</p> <p>Complete ASIA A Loss of all Power/Sens.</p> <p>Incomplete ASIA B, C, D, E Preservation of some power and sensation</p> <ul style="list-style-type: none"> Brown sequard Central cord Anterior cord Cauda Equina
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Autonomic / Systemic Problems

- Respiratory
- Urinary
- Bowel
- Skin
- Musculoskeletal
- Cardiovascular
- Sexual and fertility
- Endocrine changes
- Electrolytic changes

Respiratory system :

Impairment depends on:

- Level of Lesion
- Associated injuries
- Pre-morbid chest diseases
- Smoking

Effect

- Inability to maintain ventilation
- Inadequate respiration or gas exchange
- Impaired cough, retained secretions and infections

Therapeutic measures

- Maintain an open airway
Humidified air, Bronchodilators, chest care
- Artificial airway (tracheostomy)
- Mechanical ventilation
- Chest Physiotherapy
Assisted coughing, breathing exercises
- Prompt treatment of infections

Urinary System

Spinal shock

Acontractile Bladder > urinary retention

<p>UMN (reflex bladder) Sheath drainage</p> <p>LMN (Areflexic Bladder) Intermittent catheters</p>	
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Complications

- Urinary tract Infections
- Urinary calculi
- Renal impairment

Cardiovascular system

<p>Neurogenic hypotension Unopposed vagal effect</p> <p>Effect</p> <ol style="list-style-type: none"> Hypo tension Systolic 90-110 Bradycardia Pulse 50-70/ min 	<p>Venous thrombosis</p> <p>40% Deep vein thrombosis 5% Pulmonary embolism</p> <p>Prophylaxis</p> <ul style="list-style-type: none"> Passive limb exercises TED stockings Warfarin / Heparins
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Gastro intestinal system

Autonomic Dysfunction / Paralytic ileus

Early/ Spinal shock
 Nil by mouth
 Nasogastric tube
 I V fluids


Parental nutrition

UMN(reflex bowd) Bowel stimulants
 LMN (areflexic Bowel) Manual evacuation / enema

Complications
 Stress Ulceration
 Gastric protection
 Omperazole, Ranitidine

Skin

1. Pressure sores:



Poor skin perfusion
 Lack of sensation
 Unrelieved Pressure

Sacrum, Ischium, Trochanter
 Occiput, heels, scapulae, Groin

Prevention
 Avoid prolonged pressure
 Frequent turning every 2 hrs

Treatment
 Prolonged bed rest
 Expensive dressings

Complications
 Infection
 Death

2. Cellulitis

Sexual & Fertility.

1. Erectile Dysfunction

Reflex
 Psychogenic

2. Loss of orgasm

3. Reduced Fertility

Sperm retrieval and preservation
 In Vivo Fertilisation

Musculo-skeletal System.

Increased Tone and Spasms.

Upper motor neuron lesion
 Below the level of injury

Management:
 Physiotherapy
 Anti spasticity medication eg Baclofen, Dantrium
 Intrathecal Baclofen

Skeletal / Joint Problems

Shoulder joints-- rotator cuff injuries

Limb fractures --Surgical approach


Heterotopic Ossification

Rehabilitation

Goal is to make maximum use of the remaining functions to achieve the highest degree of independence permitted by the neurological lesion and reintegrate into the community.

Multidisciplinary Team:

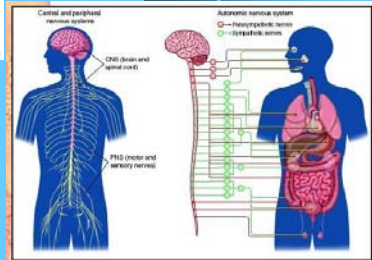
Medical team
 Physiotherapist
 Occupational therapist
 Nursing team
 Psychologist
 Social Services team



**** Successful rehabilitation is one where an individual is admitted as a patient and discharged as a tax payer.****

Sir Ludwig Guttmann

Nervous System:



Outcome of Spinal Injury:

Spinal (vertebral) Column

Spinal Cord Damage

Autonomic / Systemic
Dysfunction

