Health problems

- Obesity
- Chronic constipation
  - Diet
  - Fluid intake
  - Laxatives
    - Movicol
    - Senokot
    - Lactulose
  - Enemas

Health problems

- Gastro-esophageal reflux
  - can result in
    - oesophagitis / gastritis,
      causing pain and poor
      appetite. If severe,
      aspiration can result

Health problems – gastroesophageal reflux

- Conservative measures
  - propping upright after a
    meal / thickening feeds /slowing the rate of feeding
- Medications
  - anti-acid medications eg ranitidine, omeprazole
    reduce acidity of stomach and limit damage produced
    by acid reflux
  - prokinetic agents such as domperidone may reduce
    the amount of reflux
- Fundoplication

Health problems

- Lung disease
  - caused by aspiration from oromotor dysfunction or
    severe gastro-esophageal reflux.
  - Coughing or choking during meal times or wheeze
    during or after meals may signal the presence of
    aspiration
  - Videofluoroscopy may be helpful

Health problems – bone disease

- Increased skeletal fragility
- Increased risk of pathological fractures
  - Strategies include
    - Education concerning consumption of calcium
    - Adequate exposure to sunlight
    - Vitamin D preparations
    - Use of newer drugs such as bisphosphonates
      when indicated

Health problems

- Dental disease
- Higher frequency of
  undescended testes
- Puberty / menstrual issues
- Emotional problems
Consequences of the motor disorder

- Saliva control problems
- Speech pathology techniques
- Orthodontic appliances
- Medication
  - Benzhexol hydrochloride
  - Glycopyrrolate

Botulinum toxin
Surgery
- Relocation of submandibular ducts and excision of sublingual glands

Monitoring of adverse effects

- 19 children with cerebral palsy following surgery
- 75 other children with cerebral palsy
- Surgical group had significantly more caries than the comparison group (P<0.0001)

Incontinence
- Cognitive deficits
- Lack of opportunity
- Inability to communicate
- Detrusor overactivity causing urgency and frequency

How does one manage equinus?

Tom – aged 3 years
- Walked independently at 27 months
- His calves are now tightening
- He walks on his toes
- Parents are concerned that he is falling over more and hurting himself

Assessment of spasticity

1. Is spasticity interfering with
   - Function
   - Care
   - Quality of life
2. Is the spasticity
   - Localised?
   - Generalised?
**Spasticity management**

- Localised spasticity
  - Orthotics / splinting
- Serial casting
- Botulinum toxin A injections

**Generalised spasticity**

Kathryn aged 13 years
- Severe spastic quadriplegia
- Can be walked but getting increasingly difficult
- Legs are stiff
- Problems with bathing, dressing and toileting

**Botulinum toxin**

- Neurotoxin type A produced by *C. Botulinum*
- Injection of BTX-A results in a reversible blockade of ACh release at neuro-muscular junction

**Role of intrathecal baclofen**

- Used for children with severe spasticity interfering with care, comfort and function

**Spasticity management**

- Generalised spasticity
  - Medications
    - Diazepam
    - Baclofen
    - Dantrolene
  - Intrathecal baclofen
  - Selective dorsal rhizotomy
Consequences of the motor disorder

- Orthopaedic problems
  - equinus foot deformity
  - hamstring overactivity
  - subluxed / dislocated hips
  - upper limb problems
  - scoliosis

Orthopaedic issues

- In the young child, mainly issues relating to subluxed / dislocating hips (GMFCS 3,4,5)
- Older child – lengthening / tendon transfers, SEMLS (GMFCS 1,2,3)

Deterioration in cerebral palsy

- Emotional stress
- Uncontrolled epilepsy
- Worsening contractures
- Intercurrent infection
- Wrong diagnosis
- Inappropriate anticonvulsants
How do we evaluate what we do?

- Few, or no, measurement tools
- No means of evaluation of programs

Measurement tools

- Gross Motor Function Measure

Other tools developed

- PEDI
- WeeFIM
- The Tardieu Scale
- Modified Ashworth Scale and range of motion at specific joints
- Goal Attainment Scale

Assessment of upper limb function

- QUEST
- Melbourne Assessment of Upper Limb Function
- MACS

Assessment of upper limb function: The Manual Abilities Classification Scale

- How children use their hands when handling objects in daily activities.
- To reflect the child’s typical manual performance, not maximal capacity.
- It classifies what children do when using one or both of their hands for activities, rather than classifying each hand separately.

Assessment of upper limb function: The Manual Abilities Classification Scale

- Used for children 4-18 years
- When defining the five levels of the MACS, primary criterion was that the distinctions in manual ability should be clinically meaningful.
Assessment of upper limb function: The Manual Abilities Classification Scale

- Level 1: Handles objects easily and successfully
- Level 2: Handles most objects but with somewhat reduced quality and / or speed of achievement
- Level 3: Handles objects with difficulty: needs help to prepare or modify activities
- Level 4: Handles a limited selection of easily managed objects in adapted situations
- Level 5: Does not handle objects and has severely limited ability to perform even simple actions

Measurement tools

- Development of a quality of life measures for children with cerebral palsy (CP)

Conventional therapies

- Physiotherapy
  - NDT (Bobath)
  - Conductive Education (Peto)
- Occupational therapy
- Speech pathology

Alternative therapies

1. Yearning to “do something”
2. More optimistic approach from alternative sources, for example, questions are answered without hesitation
3. Publicity in the media
4. Failure to provide parents with facts about traditional and acceptable treatment modalities

Working with families

- Child is part of a family unit
- A supportive environment builds self-esteem and confidence
- Parents need practical help

Through the Maze

- Provision of information is essential
- Parents as partners
- Family centred approach
Other resources
- Parent support groups
- Association for Children with a Disability
- Cerebral Palsy Support Network
- Noah’s Ark
- DHS
- Scope / Yooralla / CPEC

Working with families
Health and well-being of caregivers (468 families)
- Child behaviour
More problems associated with lower levels of both psychological and physical health of the caregivers
(Pediatrics 115:2005)

Working with families
Health and well-being of caregivers (468 families)
- Caregiving demands
Less caregiving demands associated with better physical and psychological well-being of caregivers
- Family function
Higher functioning associated with similar outcomes