

Best Practice

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A service to Dietitians courtesy of



Nutrition in Children with Neurodisabilities.

The Second Paediatric Expert Day: Nutricia Advanced Medical Nutrition.
8 October 2010, Cannes, France

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Selected invitees from the realm of Paediatrics: Neonatologists, Neurologists, Gastroenterologists, Paediatricians, Dietitians, Speech and Language Therapists, Scientists, Nurse Specialists and parents, from 20 countries, attended this expert day. The aims were to raise awareness of, address and tackle, the nutritional issues affecting children with Neurodisabilities (ND). Attention was focused on medical, psychological, social and parental perspectives via 6 plenary sessions and 4 interactive workshops; a summary of selected sessions from the full programme is given below.

Children with Neurodisabilities: setting the scene.

Dr. Michelle Kuperminc, USA.

30% of those with Cerebral Palsy (CP) have growth faltering. Growth is a proxy marker for health and social wellbeing. These children are shorter and lighter therefore it becomes essential to determine their body composition (muscle vs. fat vs. bone). Aetiology of poor growth in CP is complicated and multifactorial: there are no growth standards available for this group. There are descriptive charts only (Stevenson and Day 2006). BMI is not predictive and is not recommended.

Nutrition support: Assessment and management.

Dr. Kristie Bell, Australia.

When to intervene with nutrition support in ND?

- Unexplained weight loss
- Failure to gain weight
- Plateau in weight
- Low body fat stores
- Unsafe swallow
- Significant stress around feeding
- Inadequate oral intake

Nutrition assessment issues:

1. Anthropometric interpretation is difficult. Percentage body fat can be extrapolated from skinfold measurements using the modified Slaughter equations (Gurka 2010). Training for this is required but is quick, cheap and easy to perform. Linear growth is difficult to assess but essential to obtain: height, length, knee height, tibia length. Serial measurements of body weight are useful.

2. Clinical information is required on presence of co-morbidities (RTI/reflux/vomiting/constipation), secondary diagnosis, medication, biochemical markers, hydration status, physical activity level.

3. How does the child communicate especially hunger/thirst?

4. Eating/drinking/swallowing (EDS): Is special positioning required? Is modified consistency required? Is bottle/cup used for fluids? Who feeds the child?

5. Actual nutrient intake: account for oral and enteral. Be aware of parental overestimation. In assessing oral intake up to 25% of food can be lost due to poor lip seal, tongue thrust, poor lateralisation and drool.

6. Optimise oral intake when safe to do so: positioning / equipment / supplemented foods / oral nutritional supplements. Involve school and respite.

7. Nutritional requirements:

Energy: There is limited data in this population but should be based on energy expenditure. Total energy expenditure (TEE) is assessed from a combination of resting energy expenditure (REE), thermogenesis and physical activity. Predicted REE in CP has been referenced at 79 +/- 21% of that in typically developing children. Physical activity had been referenced as 1.2/1.3 for those wheelchair bound and 1.6 for ambulatory children.

Protein: No data for this population. Protein energy ratio (PER) of 10% is required to gain 5g weight/kg/day. PER should not exceed 15% due to potential renal effects. Intake is usually in excess of requirements.

Fluid: No data for this population. Monitor using hydration status (number of wet nappies per day)

Summary of the issues from the sessions and workshops: Dr Peter Sullivan, UK.

- Poor patient/carer compliance with dietary recommendation is common.
- Carers are keen to maintain a weight below an "ideal for typical developers" for ease of handling among others. This could have child protection implications.
- In a child with ND and chronic unresponsive vomiting/reflux/constipation a Cow's Milk Protein free diet should be considered.
- Whey predominant feeds have positive effects on GI tolerance.
- Large variability exists throughout Europe in the availability of HCP's in ND with resources often limited (especially Dietitians, VDF & Paediatric Gastroenterology).

Please note that a more detailed report from the Second Paediatric Expert Day in Cannes is available to download from www.nutricia.ie. Go the 'HCP Resource Centre-Dietetic Resource Centre'. A PDF version of the report will be available to download under 'educational resources'. An electronic version of this and past issues of Best Practice are also available to download from this section of the website.

www.nutricia.ie

Information at your fingertips



Irish delegates at the Second Paediatric Expert Day: Nutricia Advanced Medical nutrition, Cannes, France

Michelle Hurlley (Senior Paediatric Dietitian, COPE Foundation), Brenda Wilkinson (Senior Paediatric Community Dietitian, Ulster Hospital), Dr. Moira Stewart (Paediatrician, Royal Belfast Hospital for Sick Children), Dr. Anne Armstrong (Paediatrician, Royal Belfast Hospital for Sick Children), Suzanne Beattie (Dietitian, Nutricia Medical) & Ruth Charles (Consultant Senior Paediatric Dietitian).

rather than calculated on body surface area. Thickened fluids are as hydrating as thin.

Calcium and vitamin D: High prevalence of osteopenia in CP. Supplementing with 25ug of vitamin D3 and 500mg of calcium carbonate has demonstrated an increase in bone mineral density in severely affected CP (Vrhovsek 2000)

Other nutrients: No data exists for this population. Use EAR's/DRV's as a guide

8. Enteral nutrition support: NG/NJ/G tube should be considered with severe malnutrition/failure to achieve catch up growth via oral route/unsafe swallow/severe oral aversion/significant stress at meal times. Whenever possible it should be combined with oral feeding to reduce feeding related stress and promote maximum enjoyment of flavours/textures.

Choice of feed: Paediatric feeds

are indicated for 8-20kg, adult or age adapted feeds for >20kg. Age / weight / volume tolerated / GI health / allergies / metabolic status will often influence choice. Current range of paediatric enteral feeds are not designed or evaluated for long term use. 0.75kcal/ml paediatric nutritionally complete feeds provide growth benefits without overfeeding (Vernon-Roberts 2010). Reassessment and monitoring is essential every 12 months. Fibre feeds have been shown to have significant impact on stool microflora and pH with fewer aids required to relieve constipation (Eliu 2008). Whey predominant protein source (60/40) has been shown to have a positive effect on gastric emptying and associated vomiting (Brun 2008). Pureed foods via enteral tube: NEVER! Due to contamination risk, tube blockage and lifespan and diluted nutritional content. In reality some carers will insist on its use irrespectively.