Food, fluid, calories and energy

180410

Fluid requirements of babies

- Traditional – something like:
  - Day 1 – 80 mls per Kg
  - Day 2 – 90 mls per Kg
  - Day 3 – 100 mls per Kg
  - Day 4 – 120 mls per Kg
  - Day 5 – 140 mls per Kg
  - Day 6 – 150 mls per Kg
  - After 7 days – about 150 mls per Kg

What fluid?

- At all stages breast milk if
  - The gut is working
  - Available
    - If not available a formula substitute
- If gut is not working or baby unwell
  - 10% dextrose for the first 48 hours or so
  - After 48 hours of dextrose some sodium needs to be given – eg dextrose saline (but this is usually only 5% dextrose)

10% dextrose

- This contains 10 grams of glucose per 100ml
- 1 gram of glucose is 4 calories
- So
- 100 mls of 10% dextrose == 40 calories
- (100 mls of 5% dextrose == 20 calories)

10% dextrose

- If you are just giving 10% dextrose on day one at 80 mls per Kg, this is only 40 x 80/100 = 32 calories that the baby gets on this day

- If you are just giving 10% dextrose on day six+ at 150 mls per Kg, this is only 40 x 150/100 = 60 calories that the baby gets on this day

Calories, baby food and growth

- Human milk, and cows milk contain 70-75 calories per 100mls
- 10% dextrose contains 40 calories per 100mls

- Obviously milk is better than 10% dextrose if the baby can take it

How many calories/day does a baby need?

- It is thought that the newborn needs 120 calories per kg body weight to grow.
- So if a baby is going to grow, it needs nearly 200mls per kg of milk feed

Babies and calories and energy

- Everything a baby does requires energy! Its the same with you.
- Breathing requires energy
- The heart beating requires energy
- Suckling requires energy
- Absorbing the milk from the gut requires energy
- Maintaining the body temperature requires energy

Basal Metabolic Rate

- When a baby is at rest,
- breathing without problem,
- and in a neutral thermal environment,
- it is using a basal quantity of energy. This is known as the

Basal Metabolic Rate

More than the BMR!

- If a baby cries, this activity uses energy (calories)
- If the baby has a breathing problem, it uses more energy (calories)
- If the baby is cold it uses more energy. (calories)
- Growth requires using energy (calories)

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Feed – how often??

- Term baby: – 3-4 hourly
- 1400 – 1800 grams: - 2-3 hourly
- 1000 – 1400 grams: - 1-2 hourly
- < 1000 grams: - hourly

- Note – 80mls per Kg if baby is 1000 grams ie day 1 of life is 3.3 mls per hour and 150mls per Kg if baby is 1000 grams is 6.2 mls hourly

Fluid losses

- Adults
  - Urine
  - Stool
  - Sweat
  - Insensible loss through lungs
- Babies
  - The same
- Preterm babies
  - Considerable loss through the skin