



Belfast Health and
Social Care Trust

DIET & HAEMATOLOGY

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CONTENTS

- Importance of nutrition in the haematology patient
- Role of haematology dietitian
- Supplements
- Neutropenic diet
- Questions?



Why is nutrition important?

- Haem malignancies have a varied impact on nutritional status.
- Some patients have short episodes of nutritional depletion
- Others are admitted acutely and deteriorate rapidly
- Increasing aggressive anti-neoplastic regimens used to achieve disease remission has created issues where nutritional impairment occurs as a consequence of the treatment and not from the underlying disease (1)
- Malnutrition is a negative complication



How does malnutrition occur?

- Reduced oral intake pre-admission
- Multiple courses of treatment
- Weight loss
- Under-nutrition

- Treatment side effects include:
 - Nausea, vomiting, diarrhoea, mucositis, taste changes, fear of eating, depression, fever, inadequate hospital food, increased metabolism, malabsorption
- Long in-pt admission



Nutritional complications

- Tissue stores become depleted of essential vitamins and minerals
- Low protein/energy stores reduce resistance to infection
- Low protein reduced oncotic pressure - oedema
- Leaky gut increases food-bourne infx risk
- Bad bacteria translocate to lungs - chest infx, pneumonia
- Pressure sores & poor wound healing



No nutrition

- Hospital stay increased
- Drug bill increased
- Medical complications increased
- Recovery is prolonged



Why should we care?

- Patients malnourished during treatment poorer survival rates 3 yrs post BMT (2)
- Delicate phase of engraftment nutrition should be provided
- Biological responses - time & success of engraftment, occurrence & severity of mucositis, GVHD, VOD
- Mattsson et al (2006) concluded poor oral intake after SCT = severe acute GVHD
- Pt outcome affected by nutritional status



Reducing malnutrition risk

- Screen at each admission & during hospital stay.
- Weight/height (kg/m²) - BMI

When to act?

- BMI below 20
- Ongoing side-effects
- Patient for multiple treatments
- Transplant
- Work up clinic: dietetic assx = advice on wt gain



Example 1

- 58yr male - 2007 AML acute, ICU, intubated
- Normal wt 76.2kg (12st) after ICU 57kg (9st)
- High/protein energy advice & supplements
- Positive & determined - advice followed
- SCT minimal symptoms
- Admission wt 82.5kg (13st)
- Consumed energy dense diet pre-admission



Example 2

- 68 yr male MM diagnosed 2006
- Adx wt 71kg (11st 3lb)
- Day 40 post SCT wt 60kg (9st 7lb)
- Malnourished, fungal infection, fatigue
- Depressed thinks he's dying
- Nutrition support was refused early on
- TPN used limited success
- Remains in hospital electrolyte derangement etc

Good nutritional status/weight = faster recovery



The haematology dietitian

- We aim to provide appropriate nutrition support to each individual, to maintain their weight while adhering to their medical needs (DM, coeliac, vegetarian, CKD)
- Why pay thousands of pounds for drug treatments, hospital care, let patients endure horrendous courses of treatment if they receive sub-optimal nutrition reducing their chances of recovery and survival?
- The cost of good nutrition is small the benefits huge



How do we make our nutritional decision?

- Calculate nutritional requirements
- Diet history
- Medical & social issues evaluated
- Weight charts x 1-2 wk
- Stool, fluid, temperature charts
- Biochemistry - daily



Resources we use

- Extras menu – good for younger patients.
- Storecupboard items – soup, beans, custard..
- Food record chart – essential to provide serial view of intake, content, preferred times, deterioration or improvement in intake
- In BCH patients keep these- participation
- Helpful flexible catering
- Motivated ward staff – encouraging patients, making supplements
- Negativity breeds negativity



Resources we use

- Written advice: nausea, vomiting, diarrhoea, taste changes, clean diets, high protein energy, soft, supplements etc
- This advice can be as simple as change to plastic cutlery if metallic taste, to dealing with brush border depletion in ongoing diarrhoea
- Dedicated nutritional supplement round – house keeper



Nutritional supplements

- Wide variety – what and when to use?

Nourishing drinks you can buy

- These drinks (non-prescription) can be bought in chemists and some supermarkets. They come in a powdered form and should be made up as directed on the packet.
Build-up: vanilla, banana, strawberry, chocolate, natural or lemon 'n' lime (contains some fibre).
- **Build-up soup:** chicken, potato and leek, tomato and vegetable (contains some fibre).
- **Boots Recovery:** chocolate, strawberry or original.
- **Complan:** original, strawberry, vanilla, peach and raspberry, chocolate or banana.
- **Complan savoury:** chicken or vegetable.
- **Complan ready-to-drink cartons:** chocolate, vanilla and strawberry flavours



Nourishing drinks on prescription

- High Energy Content:
- These are milk based drinks and come in a wide variety of flavours.
- Clinutren 1.5 (Nestle)
- Ensure Plus (Abbott)
- Fortisip Bottle (Nutricia)
- Fresubin Energy (Fresenius Kabi)
- Resource Shake (Novartis)

High energy content with fibre

- Clinutren 1.5 fibre (Nestle)
- Enrich Plus (Abbott)
- Fortisip Multi-fibre (Nutricia)
- Fresubin Energy Fibre (Fresenius Kabi)
- Resource 2.0 Fibre (Novartis)



High energy content - Yoghurt based

- These can be useful for people with taste change
- Ensure Plus Yoghurt Style (Abbott)
- Fortifresh (Nutricia)

Juice based drinks

- These drinks are not suitable for diabetics
- Clinutren Fruit (Nestle)
- Enlive Plus(Abbott)
- Fortijuice (Nutricia)
- Provide Xtra (Fresenius Kabi)
- Resource Fruit (Novartis)



Powdered energy drinks

- They can be easily mixed into yoghurts, rice pudding, fruit juice or jelly to increase the protein and calorie content.
- Calshake (Fresenius Kabi)
- Enshake (Abbott)
- Scandishake (Nutricia)

Savoury supplement

- These are energy dense nutritional powders which are made up with hot water to make savoury drinks.
- Vitasavoury soup (Vitaflo)



Energy and protein supplements

Some may not be suitable for diabetics

Energy:

- Maxijul (SHS), Caloreen (Nestle), Polycal (Nutricia), Polycose (Abbott), Vitajoule (Vitafl o) Quickcal (Vitafl o).
- These can be added to any liquid or moist food such as porridge, yoghurt, soup or tea, to increase the calorie content. They dissolve easily and are tasteless. Directions for use are given on the packets.

Protein:

- Protifar (Nutricia), Maxipro (SHS), Promod (Abbott), Procal (Vitafl o).
- These can be added to liquid foods as above, to increase the protein content.



Liquid supplements:

- Polycal (Nutricia), Maxijul (SHS), Calogen (SHS), Procal (Vitafl o).
- These are energy supplements which come as a flavoured liquid. They can be taken neat, mixed into drinks or added to food.

Nourishing puddings

- Clinutren Dessert (Nestle): chocolate, vanilla, peach and caramel. Formance (Abbott Laboratories): butterscotch, chocolate and vanilla. Forticreme (Nutricia): vanilla, chocolate, coffee, banana and forest fruits. Resource Energy Dessert (Novartis): caramel, chocolate and vanilla.
- These are cold desserts which are especially useful for people who find swallowing difficult



Nasogastric /jejunal feeding

- If a food record chart indicates that food and supplements are not meeting nutritional requirements
- symptoms are ongoing or predicted to be severe (allo BMT)
- Tube feeding is necessary
- Tube feeds have been controversial for a long time in favour of PN (parenteral nutrition) NG being dismissed as a patient has mucositis or low platelets or they will recover soon
- 14 days or 35 days malnutrition is often a huge factor in longer than necessary stays
- Platelet cover and oral analgesia mouthwash overcome insertion fears



What about vomiting?

- Nasojejunal feeding is widely used in various units
- If anchored well into the jejunum, dislodgement should be minimal
- We trialled NJT feeding at BCH for a period of 9 months it was placed day 0 day +1
- The placement of tube was unpleasant
- Successful in many patients
- Now we are working with supplements and NGT to provide less invasive support



Why NG/NJ?

- The benefits of gastric feeding is that patients can be fed overnight/day from small volumes to 100% of their requirements reducing stress on having to eat at each meal time
- Semi-elemental feeds are excellent to assist with treatment related side effects, diarrhoea, nausea, healing of mucositis and speedy recovery



TPN

- TPN historically most common form of feed used in Transplant patients
- Side effects of its own (↑ LFT's)
- TPN does not use the GUT (God Uses This) = bacterial translocation
- It is costly
- We rarely use PN (severe mucositis) if used the nutrition support team make sure it is kept to its minimum!



Neutropenic diet

- In sept 2005 The BDA produced a professional consensus statement for the use of clean diets
- This arose due to the inconsistencies of practice amongst trusts and a lack of published evidence.
- The most common vectors for food Bourne infectious epidemics are undercooked poultry and eggs and fresh water sources. Campylobacter, shigella and salmonella are the most common micro-organisms, but do not represent common causes of Neutropenic infection.
- The majority of infections are caused by organisms present In the patients natural GI Flora and so, bacterial translocation can occur if GI peristaltic action is not maintained due to poor nutritional intake.
- Pets and utensils should be considered as other sources of infection.



GRADING OF NEUTROPENIC DIETARY ADVICE:

Grade 1 Neutropenia:

Neutrophil Count: $2.0 - 0.5 \times 10^9/l$, and other neutropenic 'at risk' groups

Food safety/handling advice and avoidance of high risk foods

Ensure food is thoroughly cooked

Avoid re-heating practices

Good food safety, handling, hygiene practices are essential to prevent contamination or recontamination of foods during food preparation and cooking processes, as recommended by the

Food Standards Agency

Wash all fruit and vegetables adequately



Grade 1 continued

- Avoid high risk foods: live/bio yoghurts, probiotics, soft ripened cheese

(Brie/Camembert) blue veined cheese (Stilton),
raw/undercooked eggs, shellfish,
pate/fish paste and raw meat/fish

Eating out/takeaways from reputable outlets only

Use all food within their sell by/best before dates

Avoid the use of microwaves for cooking foods;
can be used for defrosting when followed by conventional
cooking methods

Restrictions can be lifted when neutrophil count $> 2.0 \times 10^9/l$



Grade 2 Profound Neutropenia:
Neutrophil Count: $< 0.5 \times 10^9/l$

Follow food safety/handling advice and clean diet advice
In addition to Grade 1 food safety/handling advice:

Dairy: avoid un-pasteurised dairy products, soft ripened cheese (Brie/Camembert), blue veined cheese (Stilton), live/bio yoghurts and pro-biotics

Eggs: restrict undercooked/raw eggs or egg products
Meat and fish: avoid shellfish, pate/fish paste, raw and undercooked meat/fish, avoid reheating, cold and deli bought meats



Grade 2 continued

- Nuts and seeds: no restrictions
- Beans Peas and Lentils: ensure well cooked
- Fats and oils: no restrictions (use individual packets)
- Fruit and vegetables: avoid salad, raw vegetables and berries, ensure good quality (no damage or over-ripeness), wash well, core/peel, limit to well cooked products



Processed Foods: ensure cooked adequately and follow manufacturers instructions

Eating out and Takeaways: use reliable/reputable outlets and avoid takeaway and ice-cream vans

Herbs, Spices and pepper: avoid if undercooked

Miscellaneous: avoid using foods from large packages, or products from universal jars/ delicatessens to minimise air-bourne/cross bacterial contamination

Restrictions should be lifted when neutropenia $>0.5 \times 10^9/l$
(**move to grade 1 neutropenia**)

Note: if foods are not mentioned, then there is no requirement to restrict



Drinking Water Recommendations:

Freshly run tap water most commonly used or hospital filtered water.

Still bottled water should be avoided.

Bone Marrow Transplant patients:

Avoid high risk foods: raw eggs, soft blue cheese and shellfish

6 months post discharge and maintain good food hygiene practices.

(British Dietetic Association consensus statement. Oct 05)



Summary

- Multidisciplinary efforts are essential in providing the patient with nutritional support.
- Good nutritional status improves patients side effects, recovery and survival outcome and it should be an integral part of patient treatment.
- Questions?



References

- 1 –Muscaritoli et al, Nutritional & metabolic support in Haem malignancies & HSCT 2005
- 2 – mattsson J, et al, Poor oral nutrition after allogenic SCT correlates significantly with severe GVHD. BMT 2006 Nov;38(9).
- Professional consensus statement for the use of clean diets in immunocompromised patients. Wendy Rees 2005. BDA.