**Trial name**  Anderson 1998\textsuperscript{16,17}

**Methods**
- Trial type: RCT
- Method of randomisation: Unclear
- Allocation concealment: Unclear
- Assessor blinding: Yes
- Intention to treat: Unclear
- Timing of intervention: From start of conditioning to D+28
- Length of follow-up: D+28 symptoms D+100 mortality and infections D+1 year

**GvHD**

**Participants**
- Location: University of Minnesota
- Number of patients: 98 intervention 95 placebo 193 total
- Inclusion criteria: Informed consent, bone marrow transplant
- Exclusion criteria:
  - Sex: Intervention group 52 male, 49 female; Control group 59 male, 36 female.
  - Age: Intervention group range 1-62 years (34 paediatric, 64 adult) Control group range 1-62 years (38 paediatric, 57 adult). Paediatric <20 years.
  - Transplant type: Intervention group: 45 autologous, 27 sibling, 29 unrelated; Control group: 42 autologous, 28 sibling, 25 unrelated
  - Disease type: Intervention group: 13 ALL 24 CML 18 AML/MDS 10 Inherited 29 Solid Tumours 4 Aplastic anaemia; Control group: 12 ALL 20 CML 19 AML/MDS 7 Inherited 33 Solid Tumours 4 Aplastic anaemia. Solid tumours included lymphomas and myelomas.

**Intervention**
- 1g/m\textsuperscript{2} 4xday swish and swallow of either glutamine or glycine with ora-sweet, water and ora-plus
- Indications for TPN: Not discussed
- Allocated: 193
- Assessed: 193

**Outcomes**
- Mortality at D+28 and D+100
- Infections (viral and non-viral)
- TPN use
- Antibiotic use
- GvHD (acute and chronic)
- Mucositis
- Opiate use

**Commercial sponsorship**
- Hoping to develop product as a commercial venture

**Notes**
- Discrepancy between text and tables in mortality, author contacted and replied.
- Concurs with ASH abstract 1997\textsuperscript{16}
**Trial name** Aquino 2005

**Methods**
Trial type: RCT  
Method of randomisation: Random permutation table  
Allocation concealment: Yes  
Assessor blinding: Unclear  
Intention to treat: Unclear  
Timing of intervention: Admission until Day +28 or discharge  
Length of follow-up: D+28 or discharge and D+100 mortality

**Participants**
Location: Hospitals of the Pediatric Blood and Marrow Consortium, Texas, USA  
Number of patients: 57 Intervention group 63 Control group 120 Total  
Inclusion criteria: Informed consent. Undergoing transplant, <21 years old, regimen with 50% chance of mucositis, informed consent  
Exclusion criteria: Receiving vancomycin paste or non-absorbable antibiotics, to receive glutamine supplemented TPN, previous history of VOD, second transplant.  
Sex: Intervention group: 37 males 20 females Control group: 36 males 27 females  
Age: Intervention group 8.9 yrs (SD 1.0) Control group 10.5 yrs (SD 0.6)  
Transplant type: Intervention group: 25 autologous 32 allogeneic Control group: 29 autologous 34 allogeneic  
Disease type: Intervention group: 30 Acute Leukaemia 3 Lymphoma 12 Neuroblastoma 5 Non-malignancy 7 Solid tumours Control group: 32 Acute Leukaemia 5 Lymphoma 10 Neuroblastoma 5 Non-malignancy 11 Solid tumours

**Intervention**
Either 2g/m² of glutamine or glycine (max 4g) diluted to 500mg/ml in any liquid orally twice per day.  
Indication for TPN: As per institutional policy  
Allocated: 120  
Assessed: 120

**Outcomes**
Mortality  
Episodes of bacteraemia  
Hospital stay  
Time until full engraftment  
Development of VOD  
Mucositis  
Days of iv narcotics  
Days of TPN use  
Maximum serum ammonia  
Mental state change  
Development of renal failure

**Commercial sponsorship**
None discussed

**Notes**
Randomisation stratified by whether receiving TBI
Not obvious from text if data presented as standard error or standard deviation, author contacted, data presented as standard error. Author contacted for information on missing data, there was missing data from the mucositis scoring sheets
Trial name Blijlevens 2005

Methods
Trial type: RCT
Method of randomisation: Unclear
Allocation concealment: Small chance of disclosure
Assessor blinding: Yes
Intention to treat: No missing data but patients withdrawn from study after start
Timing of intervention: D-6 until neutrophil recovery, removal of line or intolerance
Length of follow-up: 3 months+

Participants
Location: University Medical School, Nijmegan, The Netherlands
Number of patients: Intervention group 16 Control group 16 Total 32
Inclusion criteria: Allogeneic T-cell depleted transplant with cyclo/TBI conditioning and idarubicin, aged 18-65, informed consent
Exclusion criteria: Inborn error of metabolism, insulin dependent diabetes mellitus, inflammatory bowel disease
Sex: Intervention group: 5 females 11 males Control group: 7 females 9 males
Age: Range Intervention group 25-64 Control group 28-57
Transplant type: All allogeneic
Disease type: Intervention group: 7 acute leukaemia 9 non-acute leukaemia
Control group: 9 acute leukaemia 7 non-acute leukaemia

Intervention
Aminomix randomised to either standard or 200ml removed and replaced with L-alanyl-glutamin (Dipeptiven) to give 0.57g/kg/day of glutamine
Indication for TPN:
Allocated: 32
Assessed: 32

Outcomes
Mortality
Infections
Time to neutrophil and platelet recovery
Days of treatment
Hospital stay
Mucositis (measured by daily oral mucositis score)
Liver and renal function
CRP
Albumin
Gut absorbtion

Commercial sponsorship
Fresenius-Kabi

Notes
Concurs with abstract from EBMT 2005
Author contacted to ask if all patients were included in results, authors reply yes and if events were total events or number of patients having that event, authors reply total events.
**Trial name** Brown 1998\textsuperscript{44,45}

**Methods**
- Trial type: RCT
- Method of randomisation: Unclear
- Allocation concealment: Unclear
- Assessor blinding: Unclear
- Intention to treat: Yes but missing data
- Timing of intervention: Start of conditioning until discharge
- Length of follow-up: Until discharge

**Participants**
- Location: Not clear but authors from Cardiff, Birmingham and Yeovil UK
- Number of patients: 18 Intervention group 16 Control group 34 Total
- Inclusion criteria: Bone marrow transplant and informed consent
- Exclusion criteria:
  - Sex: Intervention group 11 males 7 females Control group 9 males 7 females
  - Age range: Intervention group 19-62 years Control group 16-55 years
  - Transplant type: Intervention group 15 autologous 3 allogeneic Control group 12 autologous 4 allogeneic
  - Disease type: Intervention group 6 NHL 5 HD 2 AML 2 CML 2 Myeloma 1 ALL Control group 7 NHL 3 HD 3 AML 2 CML 1 Myeloma

**Intervention**
- Randomised to either 50g of glycl-L-glutamine or 50g of isonitrogenous amino acids daily
- Indication for TPN:
  - Allocated: 34
  - Assessed: 25

**Outcomes**
- Weight
- Calorie intake
- Length of stay
- GvHD
- Neutrophil recovery
- D+100 Mortality
- VOD
- Markers of hepatic synthetic function

**Commercial sponsorship**
- None discussed

**Notes**
- Not all data reported in paper, some taken from unpublished data presented in the Cochrane review.
- Agrees with abstract from BSH 1997\textsuperscript{45}
**Trial name** Canovas 2000\textsuperscript{19,20}

**Methods**
Trial type: RCT  
Method of randomisation: Unclear  
Allocation concealment: Unclear  
Assessor blinding: Unclear  
Intention to treat: No  
Timing of intervention: Start unclear but finished when TPN required or neutrophil recovery  
Length of follow-up: Unclear

**Participants**
Location: Hospital 12\textsuperscript{th} October, Madrid, Spain  
Number of patients: 17 Glutamine, 17 Whole protein, 11 Dextromaltose 45 Total  
Inclusion criteria:  
Exclusion criteria:  
Sex: Unclear  
Age: Unclear  
Transplant type: Autologous only  
Disease type: Unclear

**Intervention**
Randomised to 20g of either glutamine, whole protein or dextrose-maltose given in 100ml of orange juice, milk or water daily.  
Indication for TPN: Unclear  
Allocated: 45  
Assessed: 45

**Outcomes**
Diarrhoea  
Stomatitis  
Mucositis  
Levels of albumin, transferring, prealbumin and retinol binding protein  
Time to neutrophil recovery  
Time to TPN

**Commercial sponsorship**
None discussed

**Notes**
Abstract from ESPEN 1997\textsuperscript{20} similar but possibly different trial  
Contacted author who provided details on patient numbers and outcomes in means and standard deviations. Author also confirmed that the patients differed slightly between the paper and the conference abstract.
**Trial name** Coghlin-Dickson 2000

**Methods**
- **Trial type:** RCT (matched on transplant and conditioning type)
- **Method of randomisation:** Unclear
- **Allocation concealment:** Small chance of disclosure
- **Assessor blinding:** Unclear
- **Intention to treat:** All patients accounted for
- **Timing of intervention:** First day of conditioning until D+28 or discharge
- **Length of follow-up:** > 11 months for surviving patients

**Participants**
- **Location:** Stanford University Medical Centre
- **Number of patients:** Intervention group 29 Control group 29 Total 58
- **Inclusion criteria:** Informed consent
- **Exclusion criteria:**
  - **Sex:**
    - Intervention group: 15 females, 14 males
    - Control group: 11 females, 18 males
  - **Age:**
    - Range: Intervention group: 21-59, Control group: 17-58
  - **Transplant type:**
    - Intervention group: 18 autologous, 11 allogeneic
    - Control group: 16 autologous, 13 allogeneic
  - **Disease type:**
    - Intervention group: 1 ALL, 5 chronic leukaemia, 12 lymphoma, 10 myeloma, 2 AML
    - Control group: 1 ALL, 3 chronic leukaemia, 9 lymphoma, 12 myeloma, 2 MDS, 2 AML

**Intervention**
- Either 10g of glutamine or powdered sucrose orally 3x day
- **Indications for TPN:** Patient consuming <50% estimated daily calorie needs
- **Allocated:** 58
- **Assessed:** 58

**Outcomes**
- **Mortality**
- **Relapse rate**
- **Time to white cell recovery (>1000)**
- **Hospital stay**
- **Days of TPN**
- **Days of oral intake >1 litre**
- **Mucositis (days and grades, grades from Stanford BMT Toxicity Score)**
- **Total supplement consumed**
- **Lowest albumin**
- **Highest creatinine**
- **Highest bilirubin**

**Commercial sponsorship**
- None discussed

**Notes**
- Author contacted on discrepancy in numbers
**Trial name** da Gama Torres 2008

**Methods**
Trial type: RCT  
Method of randomisation: Random number generation  
Allocation concealment: Yes  
Assessor blinding: Yes  
Intention to treat: Yes  
Timing of intervention: D0-D+6  
Length of follow-up: D+180

**Participants**
Location: Hospital das Clinicas, Belo Horizonte, Brazil  
Number of patients: 27 Intervention group 26 Control group 53 Total  
Inclusion criteria: Aged 18-64yrs, leukaemia, HLA identical sibling allogeneic, informed consent  
Exclusion criteria: Benign diseases, solid tumours, lymphomas, cirrhosis, congestive cardiac failure, nephritic syndrome, other diseases interfering with absorption and flux of water and solutes  
Sex: Intervention group 13 males 14 females Control group 12 males 14 females  
Age: Intervention group 37.33 SD11.06 years Control group 35.96 SD8.71 years  
Transplant type: All allogeneic  
Disease type: Intervention group 17 CML 5 AML 2 ALL 3 MDS Control group 16 CML 6 AML 3 ALL 1 MDS

**Intervention**
All patients received TPN containing 500ml 10% crystalline amino acid solution, 500ml 25% glucose and daily needs of electrolytes, vitamins and microelements. Randomised to either 0.3-0.4 g/kg/day of L-alanyl-L-glutamine dipeptide, with equivalent amount of amino acids removed from TPN to provide an isonitrogenous solution (intervention), or standard TPN (control).  
Indication for TPN:  
Allocated: 53  
Assessed: 53

**Outcomes**
D+100 and D+150 mortality  
Acute and chronic GvHD  
Clinical infection  
Time to neutrophil recovery  
Length of stay  
Intestinal permeability

**Commercial sponsorship**
Franseius Kabi

**Notes**
Agrees with abstract from ASH 2007
**Trial name** Gómez-Candela 2006\textsuperscript{41,42}

**Methods**
- Trial type: RCT
- Method of randomisation: Unclear
- Allocation concealment: Unclear
- Assessor blinding: Unclear
- Intention to treat: Appears all patients are included in analysis
- Timing of intervention: D-1 until oral intake acceptable
- Length of follow-up: 3 years

**Participants**
- Location: Hospital Universitario La Paz, Madrid, Spain
- Number of patients: Intervention group 24 Control group 25 Total 51
- Inclusion criteria: Informed consent
- Exclusion criteria:
  - Sex: Intervention group 7 males 17 females Control group 7 males 18 females
  - Age: 45.67 yrs (SD 11.37) in intervention group compared to 40.88 yrs (SD 10.21) in the control group
  - Transplant type: Intervention group 20 autologous 4 allogeneic Control group 20 autologous 5 allogeneic
  - Disease type: Intervention group 20% leukaemia, 40% lymphoma and 40% solid tumours Control group 21% leukaemia, 38% lymphoma and 41% solid tumours.

**Intervention**
- Randomised to either TPN containing or not containing 0.4g/kg/day of glutamine
- Indication for TPN:
  - Allocated: 49
  - Assessed: 49

**Outcomes**
- Change in BSA/triceps skin thickness/MAC
- Mortality
- System specific complications
- Changes to body composition
- Albumin, transferring, retinol binding protein, cholesterol, nitrogen and creatinine

**Commercial sponsorship**
- Fresenius Kabi

**Notes**
- Also presented as abstract at ESPEN 2001\textsuperscript{42}
**Trial name** Jebb 1995

**Methods**
Trial type: RCT – paired by disease type and conditioning regimen then randomised in pairs
Method of randomisation: Unclear
Allocation concealment: Small chance of disclosure
Assessor blinding: Yes
Intention to treat: No
Timing of intervention: D+1 until mucositis resolved or discharge
Length of follow-up: Until discharge for all outcomes except remission - 6 months

**Participants**
Location: Addenbrooke’s Hospital, Cambridge, UK
Number of patients: Intervention group 12 Control group 12 Total 24
Inclusion criteria: Autologous transplant for haematological disease BMI 20-30
Exclusion criteria:
Sex: Not known
Age: Not known
Transplant type: all autologous
Disease type: Haematological malignancy

**Intervention**
Randomised to either 4 g of oral glutamine or poly-cal mixed with water and used as a swish and swallow 4x/day
Indication for TPN: If consuming <1000 kcal per day. TPN continued for 1-2 weeks until consuming >1000 kcal.
Allocated: 24
Assessed: 16

**Outcomes**
Days with temperature >37.5
Time to neutrophil recovery
Hospital stay
Time to platelet recovery
Mucositis
Days of TPN
Diarrhoea
IV Diamorphine use
Response rate at 6 months

**Commercial sponsorship**
None discussed

**Notes**
**Trial name** Masszi 2000³⁹

**Methods**
Trial type: RCT
Method of randomisation: Unclear
Allocation concealment: Small chance of disclosure
Assessor blinding: Unclear
Intention to treat: Unclear
Timing of intervention: Unclear
Length of follow-up: Unclear

**Participants**
Location: Budapest, Hungary
Number of patients: 31 Intervention group 37 Control group 68 Total
Inclusion criteria: HSCT, Haematological malignancy
Exclusion criteria:
Sex: Unclear
Age range: All adults
Transplant type: Unclear
Disease type: Unclear

**Intervention**
Randomised to receive or not receive 2ml/kg glutamine
Indication for TPN:
Allocated: 68
Assessed: Unclear

**Outcomes**
Platelet recovery
Platelet transfusions
Length of stay
Febrile days
Days of antibiotics

**Commercial sponsorship**
None discussed

**Notes**
No reply from author
Trial name Picardi 2001

Methods
Trial type: RCT
Method of randomisation: Matched pairs but method unclear
Allocation concealment: Unclear
Assessor blinding: Unclear
Intention to treat: Unclear
Timing of intervention: 3 days prior to conditioning until engraftment
Length of follow-up: Unclear

Participants
Location: Naples, Italy
Number of patients: Intervention group 11 Control group 12 Total 23
Inclusion criteria: Allogeneic transplant Adult
Exclusion criteria:
Sex: Unclear
Age: Unclear
Transplant type: All allogeneic
Disease type: Unclear

Intervention
Randomised to either 20g oral glutamine or not
Indication for TPN:
Allocated: 23
Assessed: 23

Outcomes
Infections
Use of G-CSF
GvHD
Mucositis
Diarrhoea
TPN use
Time to engraftment

Commercial sponsorship
None discussed

Notes
Contacted authors, no plans to publish data and no data available for further analysis.
**Trial name** Piccirillo 2003

**Methods**
Trial type: RCT
Method of randomisation: Unclear
Allocation concealment: Small chance of disclosure
Assessor blinding: Unclear
Intention to treat: All patients accounted for
Timing of intervention: D+1 - Unclear
Length of follow-up: D+120

**Participants**
Location: Universita Cattolica del Sacro Cuore, Rome, Italy
Number of patients: Intervention group 22 Control group 26 Total 48
Inclusion criteria: Autologous BMT, Informed consent
Exclusion criteria:
Sex: Intervention group 10 female 12 male Control group 7 female 18 male
Age: Range Intervention group 17-61 years Control group 18-61 years
Transplant type: 48 Autologous
Disease type: Intervention group 4 AML 11 lymphoma 5 myeloma 2 solid tumours Control group 3 AML 12 lymphoma 10 myeloma 1 chronic leukaemia

**Intervention**
First 27 patients - Received TPN containing Intralipid 10% 500ml, 33% Glucose 1000ml and hydro- and lipid-soluble vitamins. Randomised to either glamin or glucose 1000ml.
Second 21 patients – Received TPN containing Kabimix 1830 and hydro- and lipid-soluble vitamins. Randomised to either dipeptiven 100ml or not.
Indication for TPN:
Allocated: 48
Assessed: 48

**Outcomes**
Days to neutrophils >0.5
Days to platelets >20
Days to lymphocytes >0.5
Days of antibiotics
Days of fever
Days in hospital
Mucositis score (by daily mucositis score)
Lymphocyte subsets

**Commercial sponsorship**
None discussed

**Notes**
Concurs with conference abstract from EBMT 2002
Change in TPN formulation halfway through study.
Contacted author who supplied data in means and standard deviations. Also was able to confirm that all patients were accounted for.
**Trial name** Pytlík 2002\textsuperscript{32,34,46,47}

**Methods**
- **Trial type:** RCT
- **Method of randomisation:** Random number generation
- **Allocation concealment:** No disclosure prior to treatment
- **Assessor blinding:** Yes
- **Intention to treat:** Included all patients in analysis
- **Timing of intervention:** D+1 – D+14 or discharge
- **Length of follow-up:** Unclear for most outcomes but 2 year for survival/remission status

**Participants**
- **Location:** General University Hospital, Prague, Czech Republic
- **Number of patients:** Intervention group 21 Control group 19 Total 40
- **Inclusion criteria:** Autologous BMT, Signed consent, adequate organ function, peripheral blood stem cell dose >1x10\textsuperscript{6}/kg CD34\textsuperscript{+} cells
- **Exclusion criteria:** Paclitaxel with carboplatin conditioning
- **Sex:** Intervention group 14 male 7 female Control group 11 male 8 female
- **Age:** Intervention group 49$^{\pm}$12 years Control group 42$^{\pm}$14 years
- **Transplant type:** All autologous
- **Disease type:** Intervention group 6 lymphoma 6 myeloma 2 CLL 2 AML 3 MS 2 solid tumour Control group 10 lymphoma 5 myeloma 1 CLL 1 MS 2 solid tumour

**Intervention**
- 900ml of saline with randomisation to either 30g dipeptide alanyl-glutamine (containing 20g glutamine) or isonitrogenous amino acid solution daily
- **Indication for TPN:** unclear
- **Allocated:** 40
- **Assessed:** 40

**Outcomes**
- Relapse rate at 2 years
- Mortality rate at 2 years
- Time to neutrophil and platelet recovery
- Transfusion requirements
- Febrile days
- Days on antibiotics, amphotericin B, opioids, growth factor and TPN
- Length of stay
- Days of diarrhoea
- Mucositis (by Nebraska Oral mucositis score)
- Cost of antibiotics, TPN, blood, growth factors and supportive care
- Lymphocyte sub-sets
- Immunoglobulin levels
- Weight change
- Biometric measures

**Notes**
- Concurs with EBM abstract 2002\textsuperscript{34}
- Same group of patients in Benes 2002\textsuperscript{47,48} and Pytlík 2002\textsuperscript{32}
**Trial name** Schloerb 1993

**Methods**
- **Trial type:** RCT
- **Method of randomisation:** Random number table
- **Allocation concealment:** Yes
- **Assessor blinding:** Unclear
- **Intention to treat:** No
- **Timing of intervention:** Start unclear – oral intake >50% of requirements
- **Length of follow-up:** Discharge

**Participants**
- **Location:** University of Kansas Medical Centre, Kansas City, USA
- **Number of patients:** Intervention 16 Control 13 Total 29
- **Inclusion criteria:** Informed consent, bone marrow transplant
- **Exclusion criteria:**
  - **Sex:** Intervention 7 male 9 female Control 5 male 8 female
  - **Age:** Intervention range 19-55 years Control range 19-55 years
  - **Transplant type:** Intervention 7 autologous 9 allogeneic Control 6 autologous 7 allogeneic
  - **Disease type:** Intervention 6 acute leukaemia 4 chronic leukaemia 1 NHL 2 Hodgkin’s 2 solid tumours Control 5 acute leukaemia 1 chronic leukaemia 4 NHL 2 Hodgkin’s 1 solid tumours

**Intervention**
- TPN given to both groups aiming for 1.5x resting energy expenditure. TPN contained 4.7% amino acids (randomised to either Renamin with glutamine or Travasol), 20% dextrose, 20% lipids (Intralipid) with electrolytes, trace elements and vitamins.
- **Indication for TPN:** All patients
- **Allocated:** 29
- **Assessed:** 29

**Outcomes**
- **Mortality**
- **Infections** (temperatures, positive cultures, clinical infections, days of antibiotics/antifungals)
- **Transfusion requirements**
- **Length of stay**
- **Days of TPN**
- **Steroid doses**
- **Weight change**
- **Changes in body water**

**Commercial sponsorship**
- **Yes – Caraflex Infusion Services**

**Notes**
- Trial stopped early due to results of Ziegler (1992).
- Patients were excluded from analysis if data was outside 1.5x interquartile range therefore two patients were excluded from length of stay analysis (10 days and 86 days).
**Trial name** Schloerb 1999

**Methods**
Trial type: RCT
Method of randomisation: Random number table
Allocation concealment: Small chance of disclosure
Assessor blinding: Unclear
Intention to treat: No
Timing of intervention: Unclear
Length of follow-up: Unclear

**Participants**
Location: University of Kansas Medical Centre, Kansas City, USA
Number of patients: Intervention group 28 Control group 38 Total 66
Inclusion criteria: Informed consent
Exclusion criteria:
- Sex: Intervention group 18 males 10 females Control group 29 males 9 females
- Age: Presented in subgroups
- Transplant type: Intervention group 24 autologous 11 allogeneic Control group 23 autologous 8 allogeneic
- Disease type: Intervention group 3 ALL 7 AML 10 Solid Tumours 1 MDS 12 Lymphoma 4 CML Control group 3 AML 13 Solid Tumours 1 MDS 3 Myeloma 8 Lymphoma 4 CML

**Intervention**
Either 10g of glutamine or glycine in 100ml of liquid 3x/day. If require TPN change to 0.57g/kg intravenously of glutamine/day
Indication for TPN: Unclear
Allocated: 66
Assessed: 52

**Outcomes**
- Mortality
- Rate of sepsis
- +ve cultures
- Hospital stay
- Time to neutrophil recovery
- Mucositis
- Diarrhoea
- GvHD
- Weight

Length of intervention

**Commercial sponsorship**
Yes – Ajinomoto Inc., McGraw Laboratories, American Home Therapies and Pharmacia

**Notes**
Unclear from text if data presented as standard deviations or standard error, author contacted, presented as standard deviation.
**Trial name** Sykorova 2005²⁹,³⁰,³⁵,³⁶

**Methods**
- **Trial type**: RCT (Multifactorial)
- **Method of randomisation**: Unclear
- **Allocation concealment**: Unclear
- **Assessor blinding**: In one arm
- **Intention to treat**: All patients included in follow-up
- **Timing of intervention**: Day of chemotherapy until WCC>1.0 or adequate intake
- **Length of follow-up**: 3 years

**Participants**
- **Location**: Charles University, Hradec Kralove, Czech Republic
- **Number of patients**: 21 Prophylactic TPN vs. 23 On-demand TPN and 24 Glutamine vs. 20 control. Total 44 patients
- **Inclusion criteria**: Informed consent and autologous BMT
- **Exclusion criteria**: Sex: 8 male 13 female Prophylactic TPN vs. 13 male 10 female On-demand TPN and 13 male 11 female Glutamine vs. 8 males 12 females control
- **Age range**: Prophylactic TPN 18-69 years vs. On-demand TPN 25-69 years and Glutamine 18-69 years vs. control 19-69 years
- **Transplant type**: 44 autologous
- **Disease type**: Prophylactic TPN 3 acute leukaemia, 7 NHL, 7 myeloma, 4 Hodgkin’s Disease vs. On-demand TPN 4 acute leukaemia, 8 NHL, 7 myeloma, 4 Hodgkin’s Disease and Glutamine 6 acute leukaemia, 8 NHL, 6 myeloma, 4 Hodgkin’s Disease vs. control 1 acute leukaemia, 7 NHL, 8 myeloma, 4 Hodgkin’s Disease

**Intervention**
- Randomised initially to either prophylactic TPN or on demand TPN. TPN is 1.3xBEE with 60% glucose, 30% lipid emulsion, 1.8g/kg amino acids, vitamins, minerals and water and electrolytes as required. Second randomisation was to have either 0.5g/kg of glutamine replacing the standard amino acids or not.
- **Indication for TPN**: When oral intake >50% expected
- **Allocated**: 44
- **Assessed**: 44

**Outcomes**
- Mortality
- Relapse

**Commercial sponsorship**
None discussed

**Notes**
Same study as abstracts in EBMT 2003³⁶, EHA 2003³⁵ and 2004²⁹ (confirmed on communication with author)
**Trial name** Ziegler 1992^25-27,40

**Methods**

Trial type: RCT

Method of randomisation: Unclear

Allocation concealment: Small chance of disclosure

Assessor blinding: Unclear

Intention to treat: Unclear

Timing of intervention: D+1 until oral intake >50% required

Length of follow-up: Until discharge for nutritional outcomes and D+100 mortality

**Participants**

Location: Brigham and Women’s Hospital, Boston, USA

Number of patients: Intervention 24 Control 21 Total 45

Inclusion criteria: Allogeneic BMT and deemed to require TPN and >90% ideal body weight

Exclusion criteria: Non-malignant systemic disease

Sex: Intervention 16 female 8 male Control 13 female 8 male

Age range: Intervention 20-49 years Control 20-48

Transplant type: Intervention 19 sibling 5 unrelated Control 17 sibling 4 unrelated

Disease type Intervention 11 AML 11 CML 1 ALL 1 MDS Control 9 AML 10 CML 1 ALL 1 Hodgkin’s

**Intervention**

All patients received TPN with 1.5xBEE of calories. Made up of non-protein calories (70% Dextrose and 30% Lipid (Intralipid)) and crystalline amino acids (1.5g protein/kg/day). Amino acids randomised to either Renamine (intervention group (containing 0.57g/kg L-glutamine)) or Novamine (control group)

Indication for TPN: Unclear

Allocated: 45

Assessed: 45

**Outcomes**

Duration of feeding

Calories intake

Survival (D+100)

Length of stay

Average daily maximal temperature

Cumulative mucositis score

Infections (daily mean maximum temperature, total days on antibiotics, positive cultures, clinical infections)

GvHD (presence and grade)

Steroid use

Days to neutrophils >0.5

Mean leukocyte score and mean leukocyte score

Blood and platelet transfusions

Bilirubin

Cost

Mood

**Commercial sponsorship**

None mentioned
Notes
MacBurney 1994\textsuperscript{40} provides a cost-benefit analysis of this intervention
Young 1993\textsuperscript{27} uses a sub-group of patients to investigate changes in mood
Data was excluded if it was >1.5x interquartile distance from median, this
included length of stay data in three patients.