

Nutrition and cancer: impact on outcome

**From dietary counselling  
to parenteral nutrition  
in the treatment of  
tumour patients**

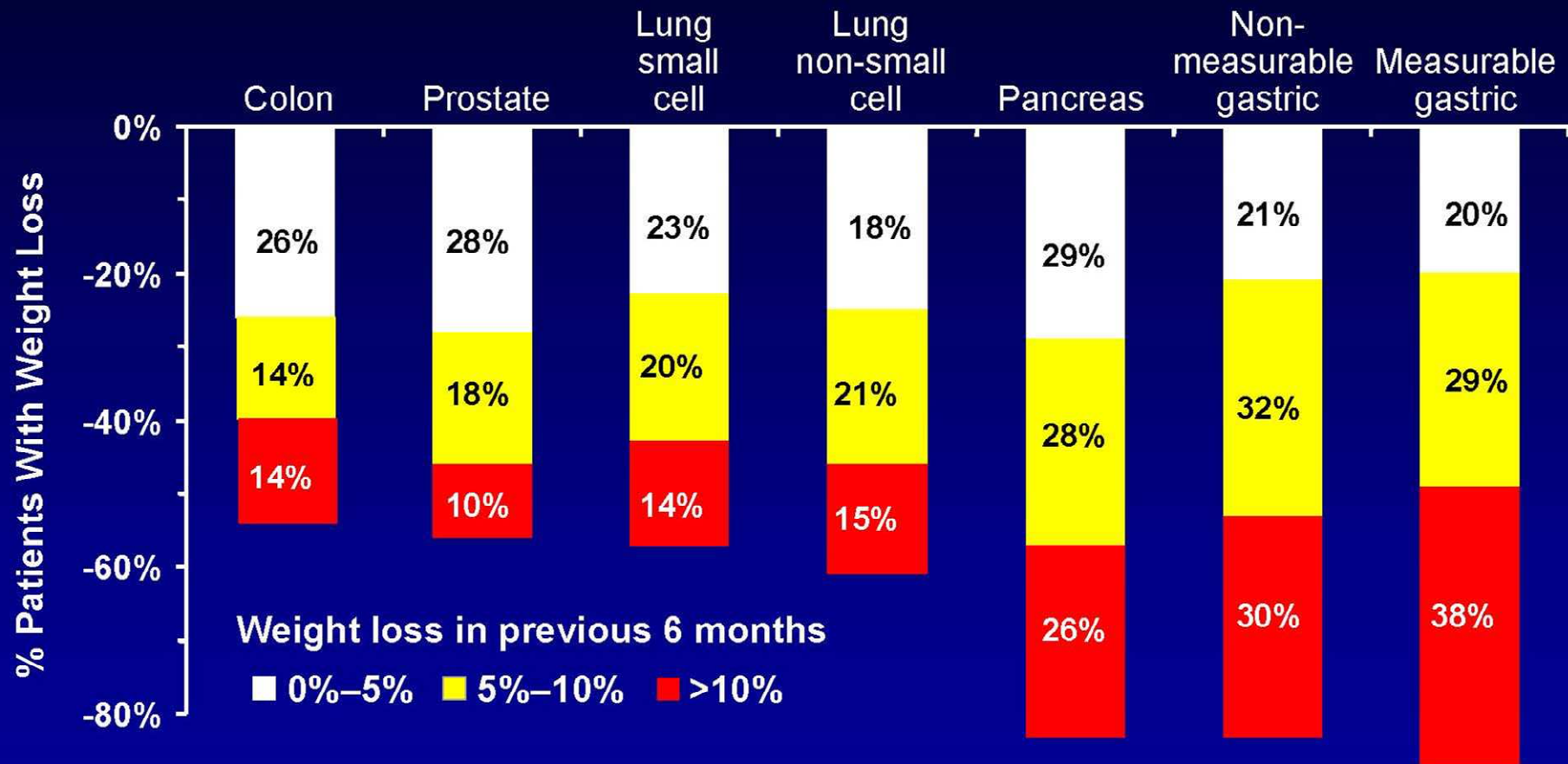
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# Frequency/Severity of Weight Loss Associated With Cancer



## Undernutrition in cancer



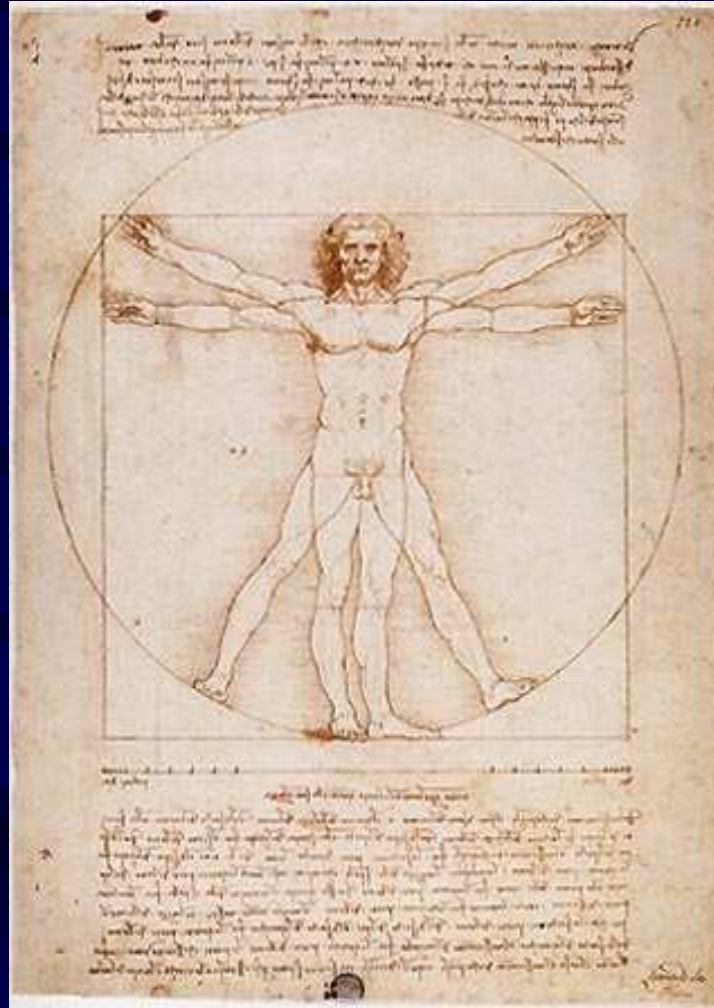
influences patients' clinical course



indicator of poor prognosis  
**! morbidity and mortality !**

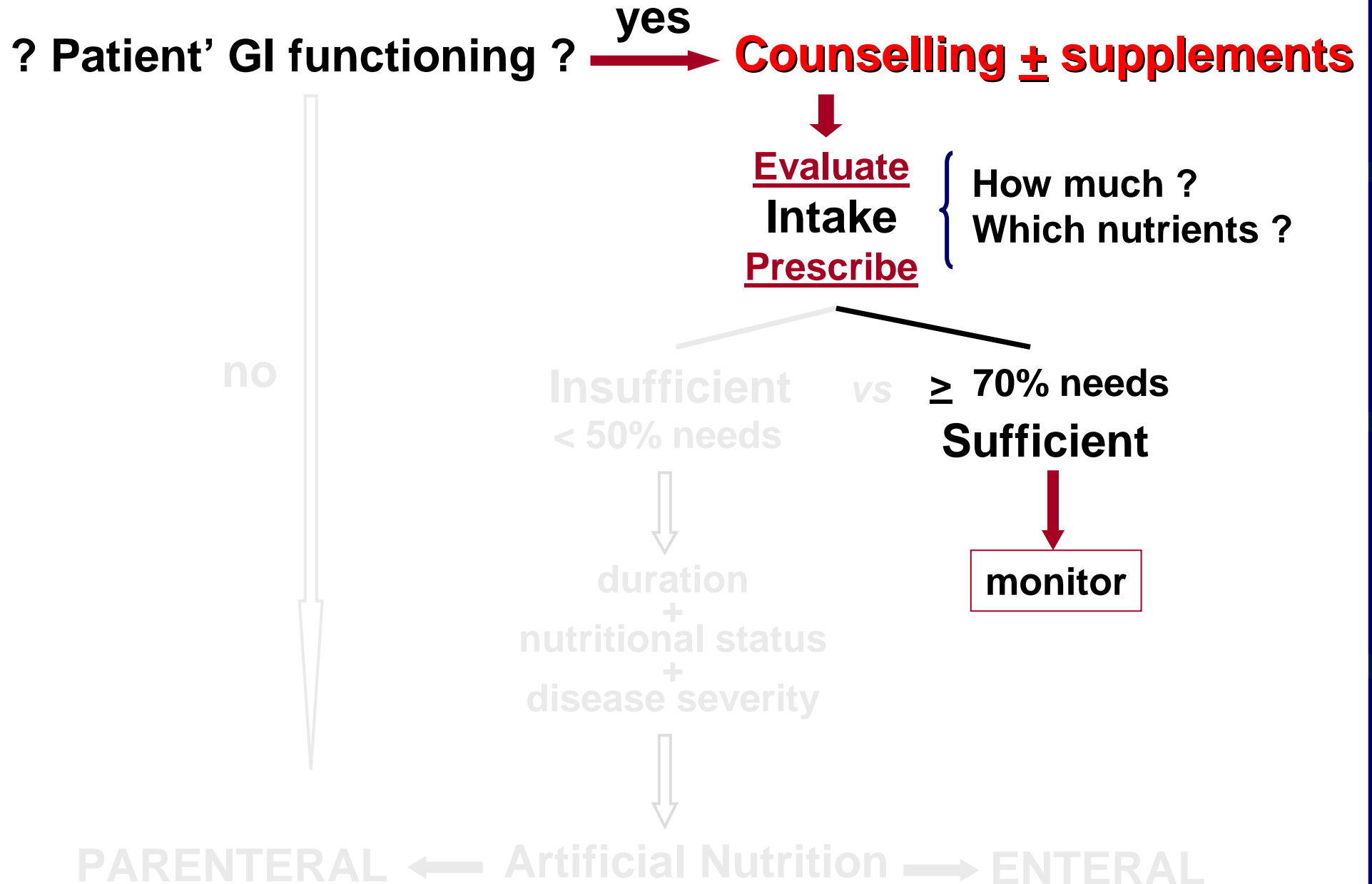
- Reduces **Quality of Life**
- Impairs **functional capacity** and **physical activity**
- Increases **treatment related morbidity** & reduces **tolerance to treatment(s)**
- May reduce **treatment(s) response/efficacy**
- May reduce **survival**

# Nutrition



*Patient-centred outcomes*

# DECISION-MAKING



# Evidence based nutritional counselling

- Assessment nutritional status &

## NUTRITIONAL INTAKE

– Structured Questionnaire

- Dietary preferences / habits / intolerances
- Diary meal distribution
- Psychological status, autonomy (cooperative? needs support?)
- Symptom' assessment (GI, dysphagia, anorexia, pain, ...)

## INDIVIDUALISED DIET

- Inform the patient / family  
importance of the diet / food  
types / amounts
- Intake  $\approx$  requirements  
energy/macro/micronutrients

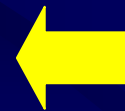
# Individualised counselling

- **Therapeutic diets** modified to fulfill specific requirements:
  - digestion / absorption
  - disease stage and progression
  - psychological factors
  - symptom modulation

- **Maintain** (as possible) the usual dietary pattern

- **Prescription**

{ type  
amounts  
frequency



Patient  
Disease  
Therapeutic goals

**Oral  
Nutrition  
Priority**

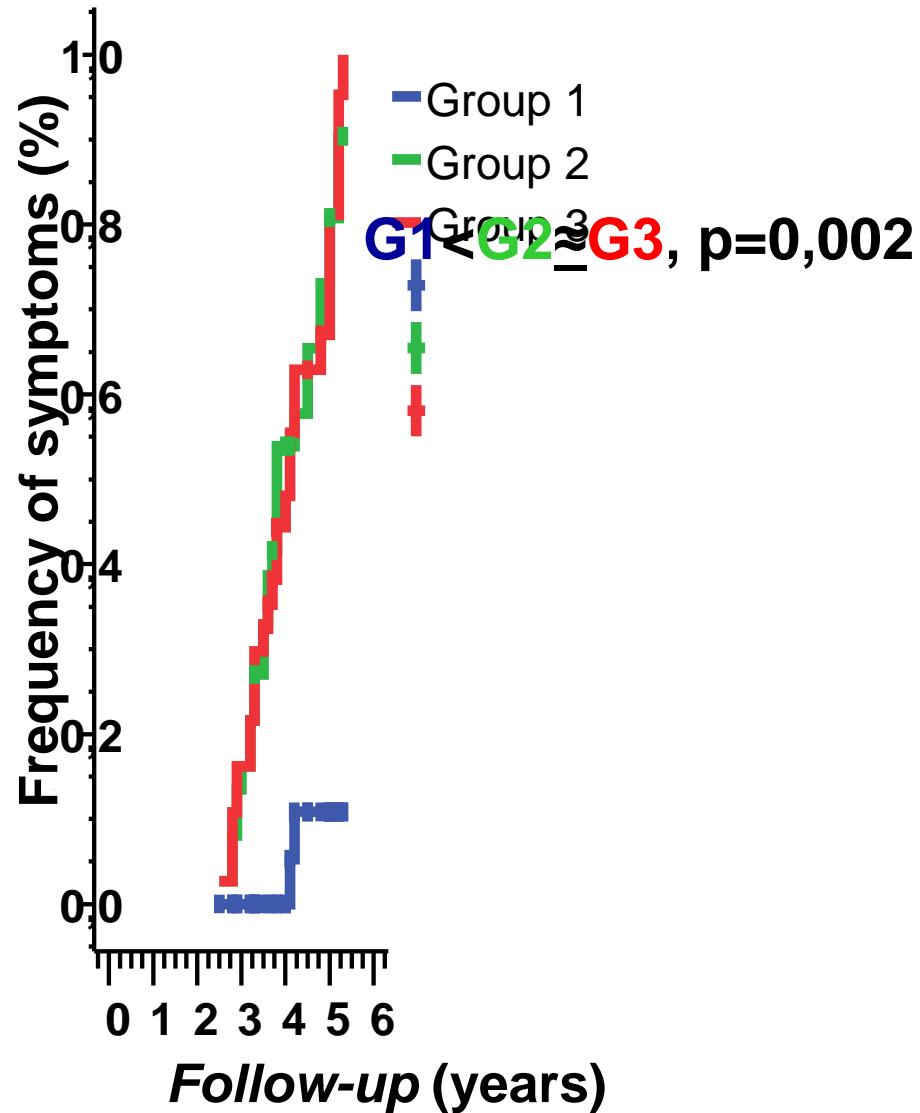
- Always the preferred route
- The only factor the patient can control
- Patient's daily routine
- Pleasure
- Family
- Improve QoL + acute / late morbidity

**Evidence grade **A****

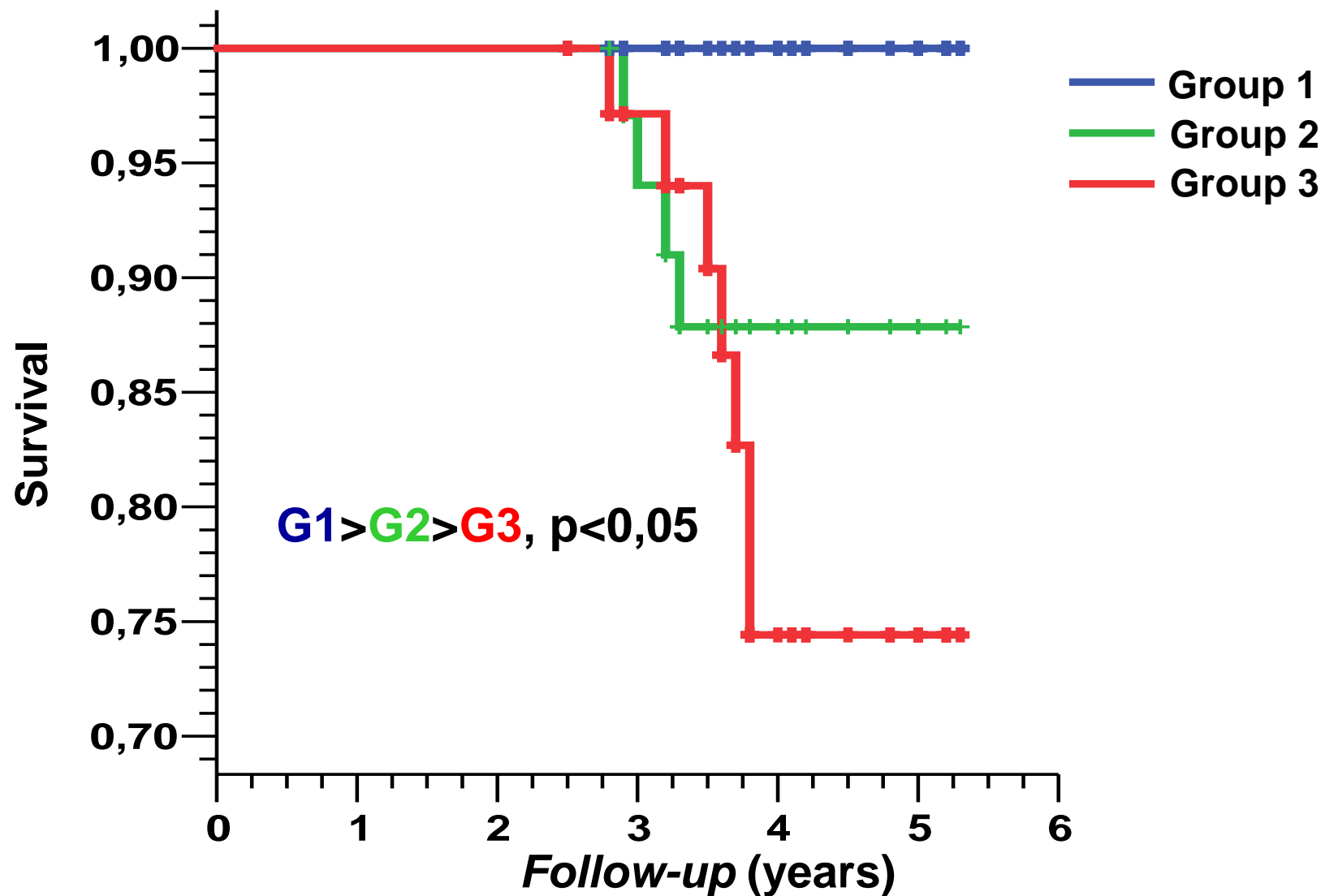
**Intensive dietary counselling with regular foods  $\pm$  oral nutritional supplements  $\uparrow$  dietary intake & prevent therapy-associated weight loss & treatment interruption in GI or head-neck cancer patients undergoing RT  $\pm$  CT.**

# Late RT toxicity

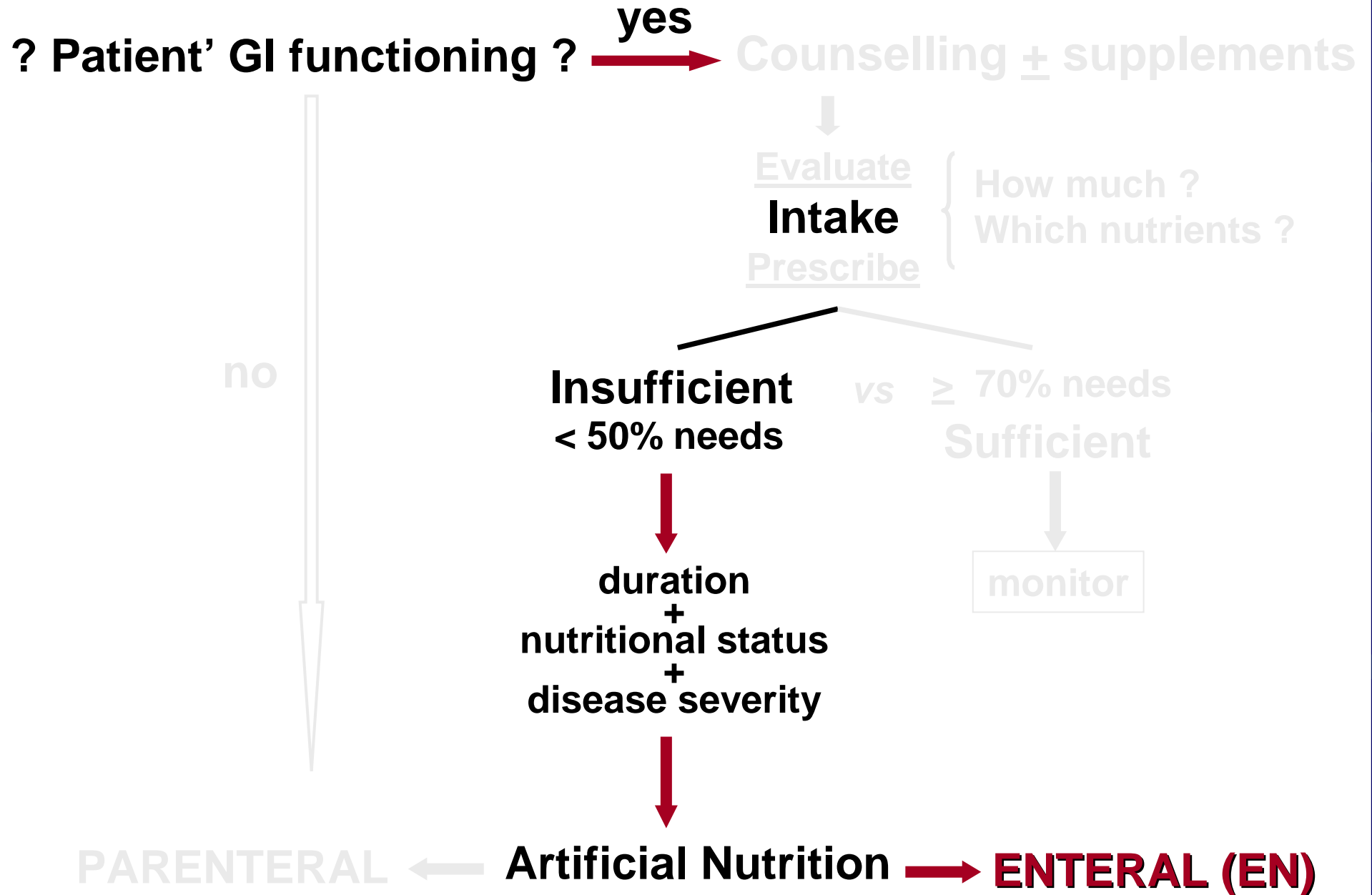
Diarrhoea, abdominal distention, flatulence



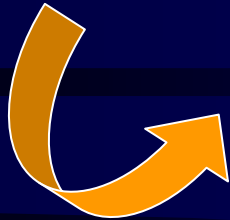
# Survival



# DECISION-MAKING



# EN - tube feeding



valuable therapy to increase or ensure nutrient intake  
if / when oral intake is inadequate



to improve / maintain nutritional status  
in patients losing weight **(B)**



Quality of Life

# ? WHO



# WHEN ?

Diagnosed undernutrition +  
markedly reduced food intake  
for >7–10 days

**Immediately**

**(A)**

Major abdominal surgery

**Preoperatively for 5–7 days**

**(A)**

Severe nutritional risk +  
undergoing major surgery

**10–14 days before surgery even if  
surgery has to be delayed (A)**

Obstructing cancer  
head-neck / oesophageal

**Immediately**

**(A)**

Severe local mucositis  
expected or present,  
e.g., intensive RT or  
RT+CT to throat / esophagus

**Transnasal? PEG?**



# FORMULAE



Standard - nutritional requirements

generally comparable to non-cancer patients



Preoperative EN with immune modulating substrates (arginine, n-3 fatty acids, nucleotides) for 5–7 days in patients undergoing major abdominal surgery independently of nutritional status

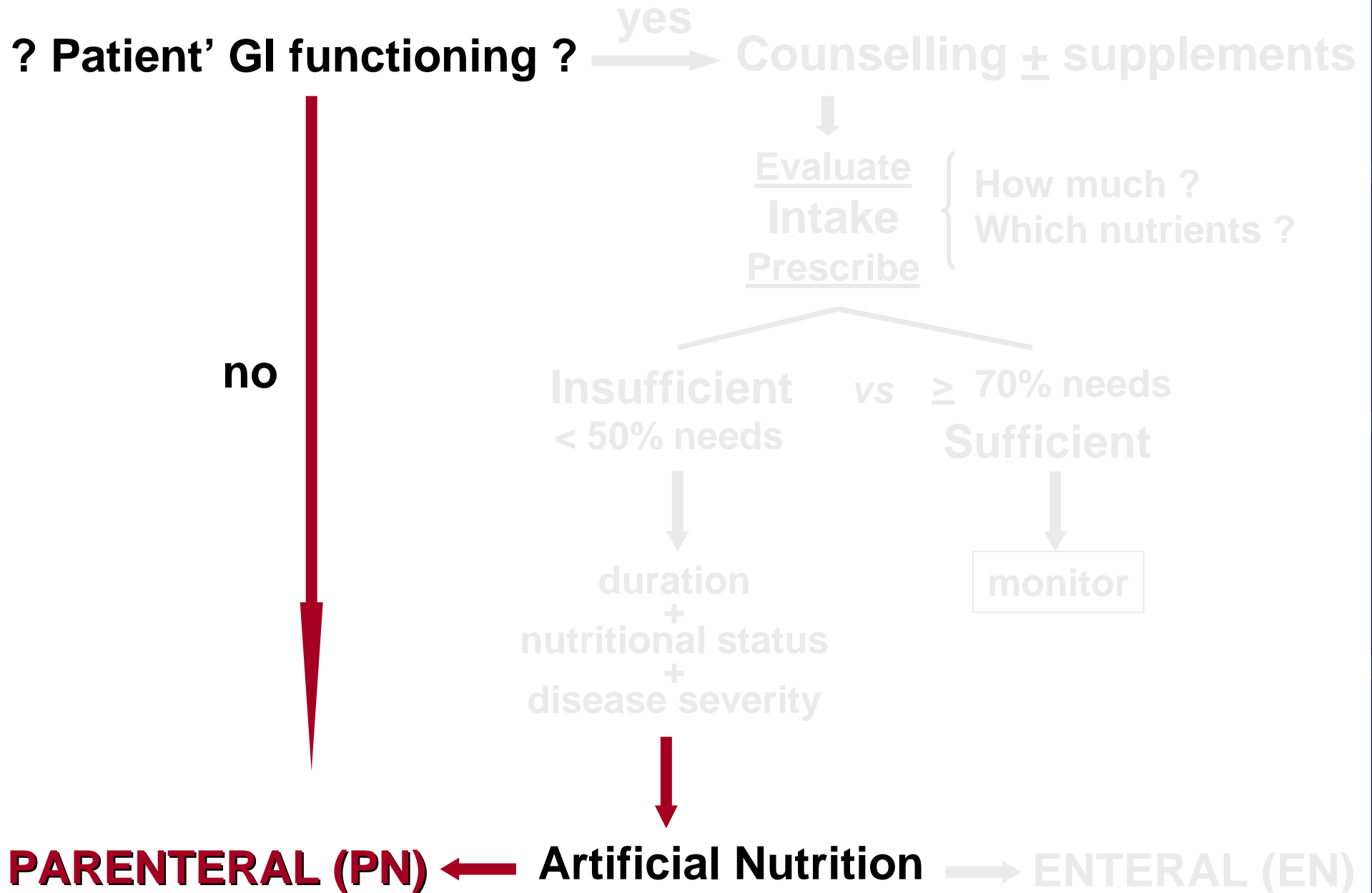
(A)



reduce complications

**Routine EN is not indicated during high-dose chemotherapy**

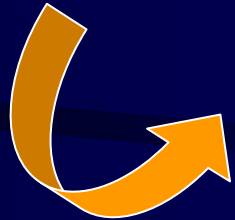
# DECISION-MAKING



# Parenteral Nutrition



valuable therapy to increase or ensure nutrient intake if / when oral intake is inadequate and/or EN is not feasible or is contraindicated or is not accepted by the patient



beneficial in malnourished and hypophagic patients with dysfunctional GI (A)



Treatment(s) completion

Improve nutritional status  
(if undernutrition not extreme)  
(B)

# ? WHO



# WHEN ?

Diagnosed undernutrition +  
starvation for >7–10 days  
+ EN not feasible

**Immediately**

**(A)**

Diagnosed undernutrition +  
major abdominal surgery  
+ EN not feasible

**Perioperatively**

**(A)**

Severe mucositis / acute RT enteritis

**Immediately**

**(B)**

Subacute-chronic RT enteropathy

**Long term - HPN**

**(B)**

- ✓ **Standard regimens in short term PN**
- ✓ **In cachectic patients on long term PN - high fat-to-glucose ratio ?**
- ✓ **In nonsurgical well-nourished patients, routine PN is not recommended - useless & ↑ morbidity (A)**
- ✓ **In well-nourished patients, perioperative PN should not be used (A)**
- ✓ **Routine PN is not recommended during CT / RT / RT+CT (A)**
- ✓ **In incurable patients with acceptable performance status, HPN may be recommended - hypophagic/ (sub)obstructed if they are expected to die prior from starvation/undernutrition than from tumour spread (B)**

# Hematopoietic Stem Cell Transplantation

Severe GI toxicity (mucositis, nausea, vomiting, diarrhea) secondary to highdose conditioning regimens impairs nutrient intake + absorption

~~Enteral Nutrition~~



Parenteral Nutrition

fluid modulation + electrolyte + macronutrients (B)

decrease in disease relapse

increase disease-free survival

improved survival



# ? WHEN

# FORMULAE ?

- ? day +1 post-HSCT and for 15-20 days
- ? oral feeding ↓ 60-70% needs for 3 days
- ✓ withdraw PN - oral intake  $\approx$  50% needs

## (B) Glutamine may protect intestinal mucosa (CT+RT)

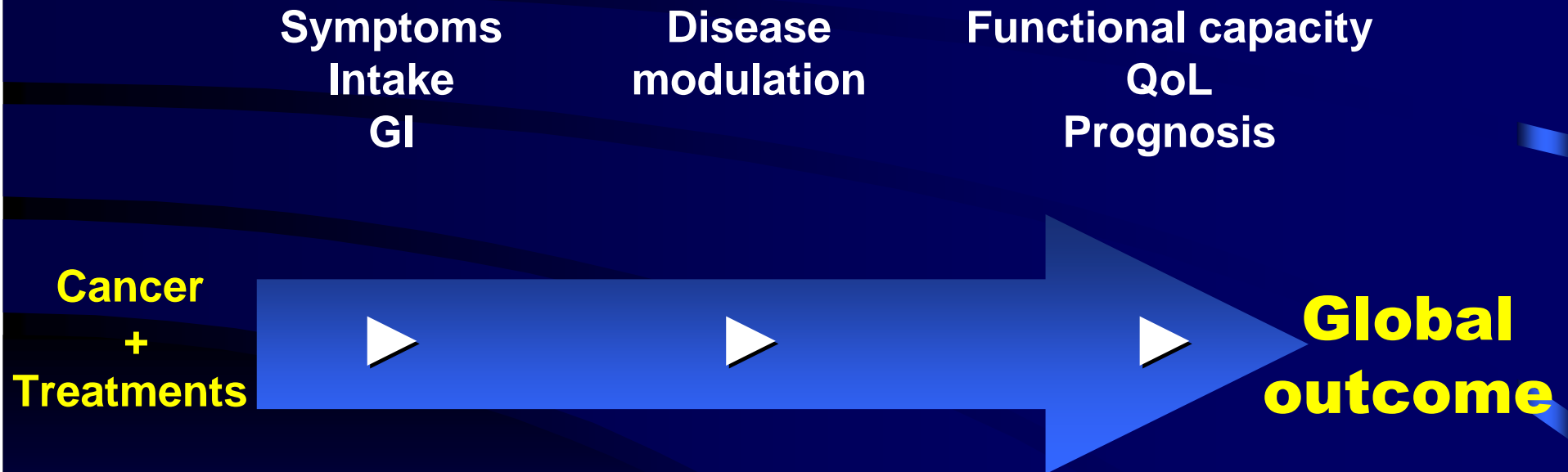
 minimize mucosal atrophy due to PN & ↓ liver damage (CT/RT)

 Improve nitrogen balance + ↑ immune function  
↓ risk of infections   ↓ hospital stay   ↓ financial costs

  
improve survival

# ***“New era in cancer management”***

## **Nutrition and outcomes**



**Therapeutical approach**  
**Multiprofessional**

**NUTRITION**

**Adjuvant to the  
anti-neoplastic  
treatment goal**

**Proactive nutritional  
intervention can modulate  
weight loss & morbidity**

**Early nutritional intervention  
paramount to prevent  
nutritional & physiological  
deficits**

**NUTRITION**

**Stabilize or improve  
global clinical status &  
↑ potential for favorable  
response to therapy,  
recovery & prognosis**

**Maintain adequate  
nutritional status, body  
composition, performance  
status, immune function &  
Quality of Life**



*It is our obligation to  
provide and integrate  
Nutrition in the  
overall treatment,  
mandatory to sustain life  
throughout the patient's  
disease journey...*

**John Hunter, 1794**

*and to significantly  
improve **Outcomes!***