La nutrizione del paziente in ospedale e la prevenzione delle infezioni ad essa correlate: revisione della letteratura

Convegno Nazionale CNAI
Bergamo
9-10 ottobre 2014

Maria Mongardi
Matteo Seligardi

Nutrizione e infezioni_la storia

- 1950 Expert Commiittee on Nutrition (FAO/WHO) studia la correlazione tra stato nutrizionale e resistenza alle infezioni da parassiti intestinali.
- 1960 Institute of Nutrition of Central America e Panama (INCAP, organo WHO)dimostra la correlazione tra deficit nutrizionali ed aumentata suscettibilità alle patologie infettive di tipo gastroenterico.

Nutrizione e infezioni_la storia

- 1968 “Interaction of Nutrition and infection” : ampia monografia sul tema (N S Scrimshaw et Al.) “extraordinary explosion of immunology and the identification of a variety of immune factors influenced by nutrition that were unknow in the 1960s”

Immunonutrizione

Nutrizione e infezioni_la storia

- 1970 avanzano gli studi sulla immunutrizione. Si osservano deficit relativi alle cellule T , nei soggetti malnutriti.
- 1980 aumentano gli studi condotti sull'uomo : si dimostra una riduzione della risposta immune nei soggetti ospedalizzati
- 1990 studi sulla vit. A legati alla mortalità infantile (per tutte le cause)

Rapp. ISTISAN 09_42/2009

Tabella 8. Nutrienti e composti alimentari che influenzano il sistema immunitario

Nutrienti	Riferimenti bibliografici *
Macronutrienti	
Proteine	Woodward B (77)
Aminoacidi	
Glutammina	Field CJ, Johnson I, Pratt VC (78)
Arginina	
Grassi	
Grassi monoinsaturi	Yaqoob P (79)
Acido α-linoleico	Crevel RWR, Saul JAT (80); Calder PC (81)
Acido Y-linolenico	Peterson LD, Thies F, Calder PC (82)
Acidi grassi polinsaturi (n-3)	Blok WL *et al* (83); Miles EA, Calder PC (84)
Acido linoleico coniugato	Whigham LD, Cook ME, Atkinson RL (85)
Fibre	Field CJ *et al* (86)
Vitamine	
Betacarotene	Erickson KL, Medina EA, Hubbard NE (87)
Acido folico	Dhur A, Galan P, Hercberg S (88)
Vitamina A	Ross AC (89)
Vitamina B12	Tamura J *et al* (90)
Vitamina B6	Rall LC, Meydani SN (91)
Vitamina C	Hemila H (92)
Vitamin D	Yang S *et al* (93); Bouillon R *et al* (94)
Vitamina E	Beharka A *et al* (95); Moriguchi S, Muraga M (96)
Metalli	
Rame	Failla ML (97); Percival SS (98)
Ferro	Kemp JD (99); Brock JH *et al* (100); Oppenheimer SJ (101)
Selenio	McKenzie RC, Rafferty TS, Beckett GJ (102)
Zinco	Fraker PJ, Telford WG (103); Shankar AH, Prasad AS (104)
Altri composti	
Alcool	MacGregor RR, Louria DB (105)
Nucleotidi	Kulkarni AD, Rudolph FB, Van Buren CT (106)

* I riferimenti bibliografici (77)-(106) si riferiscono agli anni dal 1993 al 2001

Cosa dice la letteratura attualmente?

- Esistono rapporti /relazioni tra nutrizione ed infezioni nei pazienti ospedalizzati?
- Esistono categorie di pazienti più a rischio?
- Quanto l'alimentazione "impatta" sugli esiti dei pazienti ospedalizzati?

Per saperne di più ...

Abbiamo condotto una revisione della letteratura

Metodo

- Costruzione dei quesiti di ricerca attraverso metodo PICO
- Identificazione dei criteri di inclusione/esclusione degli articoli
- Interrogazione delle maggiori banche dati biomediche
- Selezione dei record e valutazione dei fulltext
- Sintesi dei risultati

Metodo

	1	2	3
P	TUTTI I RICOVERATI	TUTTI I RICOVERATI	TUTTI I RICOVERATI
I	NUTRIZIONE xOS	NUTRIZIONE xOS	NUTRIZIONE PARENTERALE
C	NUTRIZIONE ENTERALE	NUTRIZIONE PARENTERALE	NUTRIZIONE ENTERALE
O	INFEZIONI *	INFEZIONI *	INFEZIONI *

* Particolare attenzione a: UTI, BSI, WSI, VAP/AP

Metodo

Criteri inclusione degli studi:

- Abstract disponibile
- Lingua: inglese/italiano
- Anno di pubblicazione : dal 2005
- Tipo di pubblicazione: RS, RCT, LG
- Solo pazienti adulti
- Pertinenza con i quesiti di ricerca

Metodo

Le banche dati :

- Cochrane Library

I. Cochrane Database Of Systematic Reviews
II. Cochrane Central Register Of Controlled Trials

- Medline_PubMed

- CINAHL Plus

Metodo

Selezione dei record e valutazione dei fulltext:

- Pertinenza titolo/abstract
- Accesso al fulltext

I. Piattaforma TDnet AO IRCCS di Reggio Emilia
II. Piattaforma AtoZ AOU di Ferrara

- Lettura/appraisal dei fulltext per inclusione/esclusione secondo i criteri della ricerca

- Strumenti per appraisal:

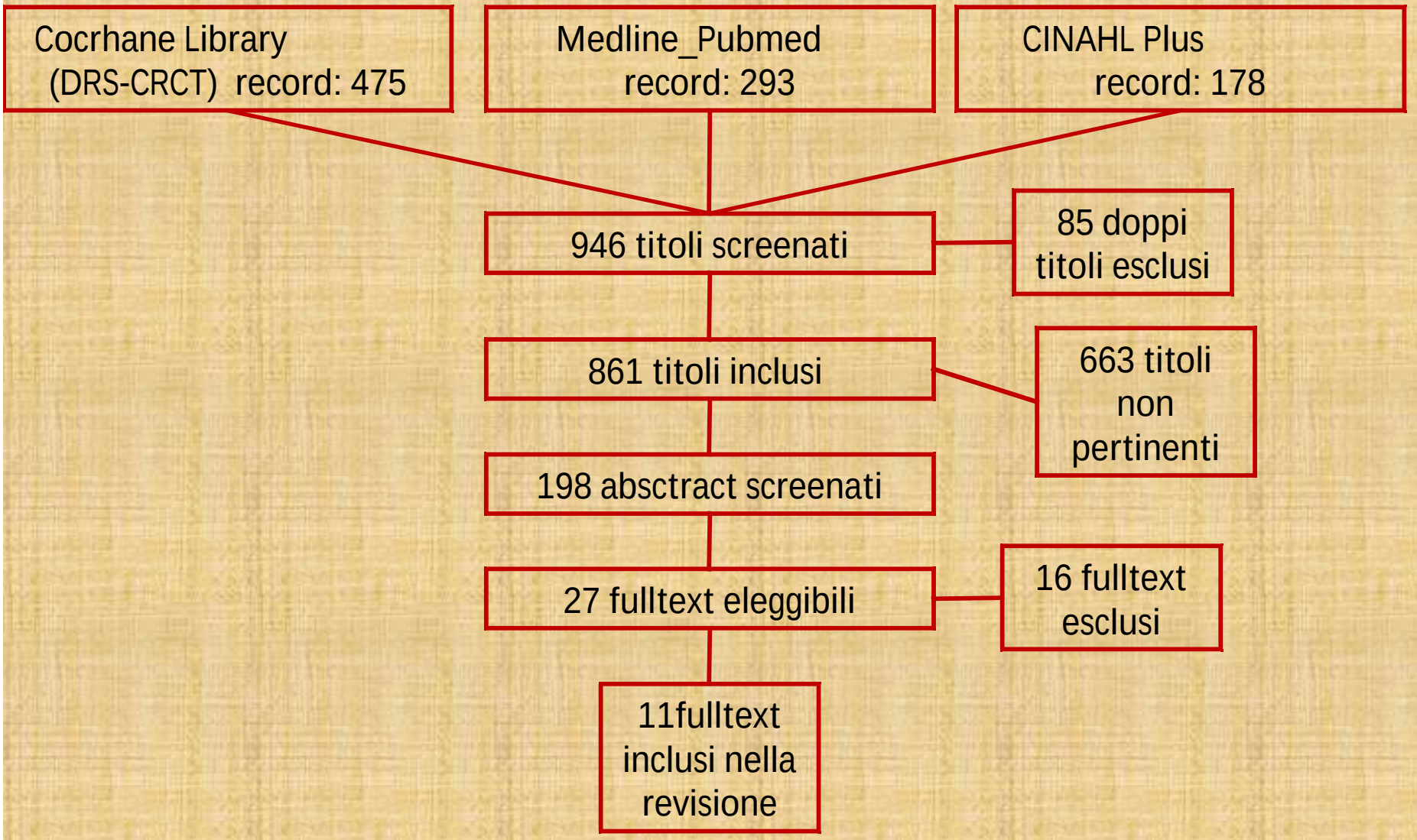
I. Per RS : PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses; Moher et al 2009_27 item)
II. Per RCT : CONSORT (Consolidated Standards of Reporting Trials; Schulz et al 2010_25 item)
III. Per LG : AGREE mod/ita (Appraisal of Guidelines for Research & Evaluation; dossier RER 2002_23 item)

Metodo

Le parole chiave:

malnutrition / nutritional support/artificial nutrition/ artificial feeding /enteral feeding/ enteral nutrition/ parenteral nutrition/ parenteral feeding/ infection/ sepsis/urinary tract infection/ bloodstream infection/ventilator associated pneumonia/ wound infection/ assessment patient outcome/ medical service/ surgical service/ intensive care unit

Flow-chart


Cocrhane Library
(DRS-CRCT) record: 475
Medline_Pubmed
record: 293
CINAHL Plus
record: 178
946 titoli screenati
85 doppi
titoli esclusi
861 titoli inclusi
663 titoli
non
pertinenti
198 absctract screenati
27 fulltext eleggibili
16 fulltext
esclusi
11fulltext
inclusi nella
revisione

Sintesi dei risultati

Categorie maggiormente studiate:

- Pazienti chirurgici (patologie addominali)
- Pazienti area critica (ICU)
- Pazienti ustionati
- Pazienti geriatrici

Pazienti chirurgici (patologie addominali)

Pre-operative Nutrition Support in Patients Undergoing Gastrointestinal Surgery. (Review)

Burden S, Todd C, Hill J, Lal S

THE COCHRANE COLLABORATION®

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2012, Issue 11

http://www.thecochranelibrary.com

Una corretta alimentazione (Immunonutrizione) pre-operatoria pone il paziente in una situazione di stato nutrizionale ottimale

Pazienti chirurgici (patologie addominali)

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-9% dei pazienti in attesa di intervento chirurgico addominale ha una BMI che indica uno stato malnutrizione
- il 54% ha subito un calo ponderale (non intenzionale) nei 6 mesi precedenti all'intervento. Il 17% di essi ha subito un calo ponderale > 10% del peso iniziale
-Il 40% dei pazienti sottoposti a chirurgia addominale sono a rischio malnutrizione

Pazienti chirurgici (patologie addominali)

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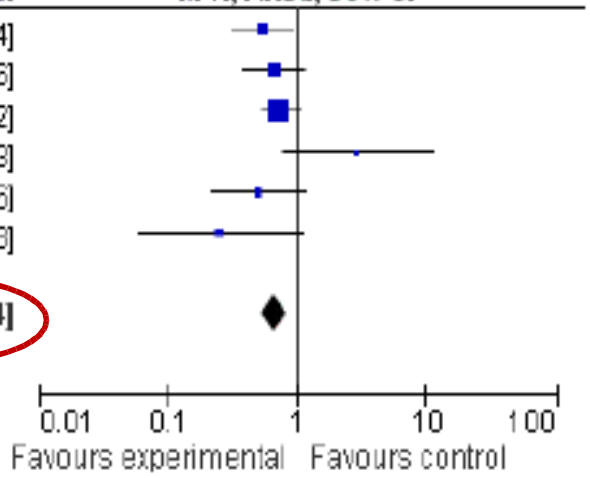
Figure 4. Forest plot of comparison: 1 All IE nutrition compared to no nutrition or standard nutrition, outcome: 1.1 Total complications.

Study or Subgroup	Experimental Events	Total	Control Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Braga 2002a (1)	13	50	24	50	20.7%	0.54 [0.31, 0.94]
Braga 2002b	14	50	21	50	18.1%	0.67 [0.38, 1.16]
Gianotti 2002	36	102	49	102	42.2%	0.73 [0.53, 1.02]
McCarter 1998	7	13	2	11	1.9%	2.96 [0.77, 11.43]
Okamoto 2009	6	30	12	30	10.3%	0.50 [0.22, 1.16]
Xu 2006	2	30	8	30	6.9%	0.25 [0.06, 1.06]
Total (95% CI)		**275**		**273**	**100.0%**	**0.67 [0.53, 0.84]**
Total events	78		116			

Heterogeneity: Chi² = 7.73, df = 5 (P = 0.17); I² = 35%

Test for overall effect: Z = 3.42 (P = 0.0006)



Pazienti chirurgici (patologie addominali)

Pre-operative Nutrition Support in Patients Undergoing Gastrointestinal Surgery. (Review)

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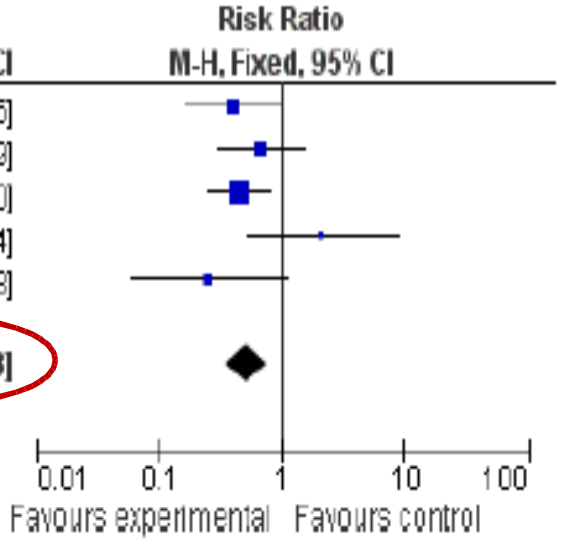
Figure 5. Forest plot of comparison: 1 All IE nutrition compared to control or standard nutrition, outcome: 1.2 Infectious complications.

Study or Subgroup	Experimental Events	Experimental Total	Control Events	Control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Braga 2002a	6	50	15	50	22.0%	0.40 [0.17, 0.95]
Braga 2002b	8	50	12	50	17.6%	0.67 [0.30, 1.49]
Gianotti 2002	14	102	31	102	45.5%	0.45 [0.26, 0.80]
McCarter 1998	5	13	2	11	3.2%	2.12 [0.51, 8.84]
Okamoto 2009 (1)	2	30	8	30	11.7%	0.25 [0.06, 1.08]
Total (95% CI)		**245**		**243**	**100.0%**	**0.51 [0.35, 0.73]**
Total events	35		68			

Heterogeneity: Chi² = 5.62, df = 4 (P = 0.23); I² = 29%

Test for overall effect: Z = 3.59 (P = 0.0003)



Pazienti chirurgici (patologie addominali)

Pre-operative Nutrition Support in Patients Undergoing Gastrointestinal Surgery. (Review)

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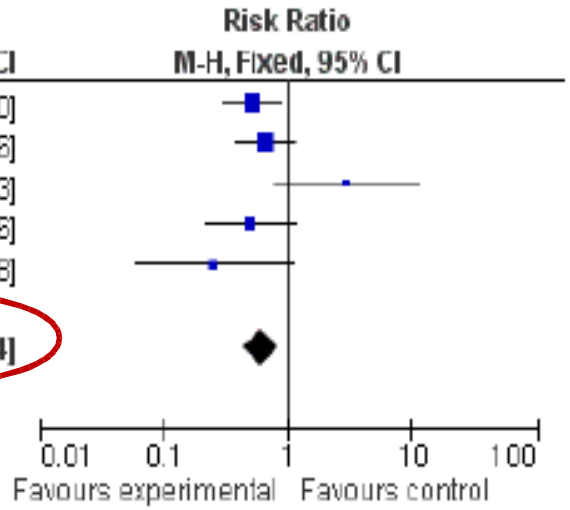
Figure 7. Forest plot of comparison: 2 Preoperative IE nutrition compared to standard nutrition, outcome: 2.1 Total complications.

Study or Subgroup	Experimental Events	Experimental Total	Control Events	Control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Braga 2002a	13	50	25	50	36.7%	0.52 [0.30, 0.90]
Braga 2002b	14	50	21	50	30.8%	0.67 [0.38, 1.16]
McCarter 1998	7	13	2	11	3.2%	2.96 [0.77, 11.43]
Okamoto 2009	6	30	12	30	17.6%	0.50 [0.22, 1.16]
Xu 2005	2	30	8	30	11.7%	0.25 [0.06, 1.08]
Total (95% CI)		**173**		**171**	**100.0%**	**0.61 [0.44, 0.84]**
Total events	42		68			

Heterogeneity: Chi² = 7.33, df = 4 (P = 0.12); I² = 45%

Test for overall effect: Z = 3.02 (P = 0.003)



Pazienti chirurgici (patologie addominali)

Pre-operative Nutrition Support in Patients Undergoing Gastrointestinal Surgery. (Review)

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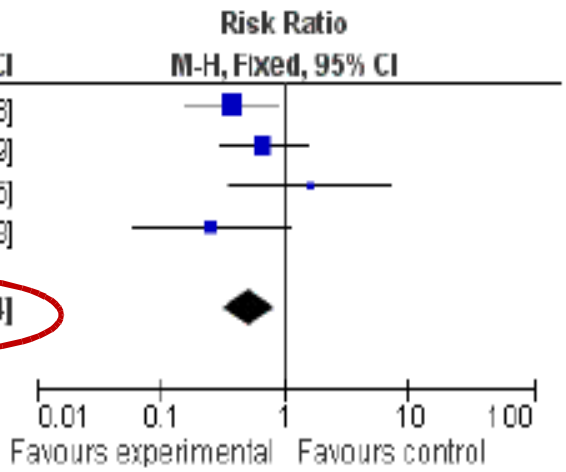
Figure 8. Forest plot of comparison: 2 Preoperative IE nutrition compared to standard nutrition, outcome: 2.2 Infectious complications.

Study or Subgroup	Experimental Events	Total	Control Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Braga 2002a	6	50	16	50	41.8%	0.38 [0.16, 0.88]
Braga 2002b	8	50	12	50	31.4%	0.67 [0.30, 1.49]
McCarter 1998	4	14	2	11	5.9%	1.57 [0.35, 7.06]
Okamoto 2009	2	30	8	30	20.9%	0.25 [0.06, 1.08]
Total (95% CI)		**144**		**141**	**100.0%**	**0.51 [0.31, 0.84]**
Total events	20		38			

Heterogeneity: Chi² = 3.99, df = 3 (P = 0.26); I² = 25%

Test for overall effect: Z = 2.65 (P = 0.008)



Pazienti chirurgici (patologie addominali)

Pre-operative Nutrition Support in Patients Undergoing Gastrointestinal Surgery. (Review)

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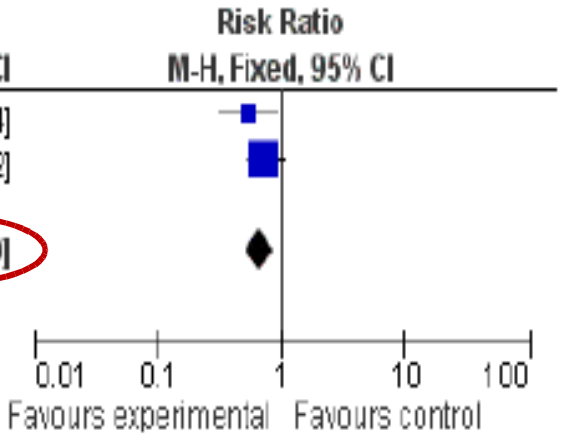
Figure 10. Forest plot of comparison: 3 Preoperative IE nutrition compared to no nutrition, outcome: 3.1 Total complications.

Study or Subgroup	Experimental Events	Experimental Total	Control Events	Control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Braga 2002a	13	50	24	50	32.9%	0.54 [0.31, 0.94]
Gianotti 2002	36	102	49	102	67.1%	0.73 [0.53, 1.02]
Total (95% CI)		**152**		**152**	**100.0%**	**0.67 [0.51, 0.89]**
Total events	49		73			

Heterogeneity: Chi² = 0.87, df = 1 (P = 0.35); I² = 0%

Test for overall effect: Z = 2.75 (P = 0.006)



Pazienti chirurgici (patologie addominali)

Pre-operative Nutrition Support in Patients Undergoing Gastrointestinal Surgery. (Review)

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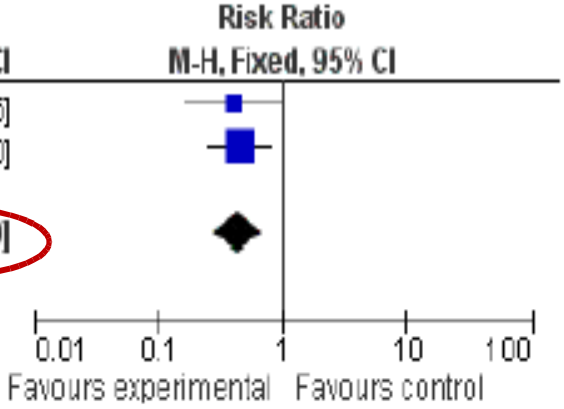
Figure 11. Forest plot of comparison: 3 Preoperative IE nutrition compared to no nutrition, outcome: 3.2 Infectious complications.

Study or Subgroup	Experimental Events	Experimental Total	Control Events	Control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Braga 2002a	6	50	15	50	32.6%	0.40 [0.17, 0.95]
Gianotti 2002	14	102	31	102	67.4%	0.45 [0.26, 0.80]
Total (95% CI)		**152**		**152**	**100.0%**	**0.43 [0.27, 0.70]**
Total events	20		46			

Heterogeneity: Chi² = 0.05, df = 1 (P = 0.82); I² = 0%

Test for overall effect: Z = 3.44 (P = 0.0006)



Pazienti chirurgici (patologie addominali)

Pre-operative Nutrition Support in Patients Undergoing Gastrointestinal Surgery. (Review)

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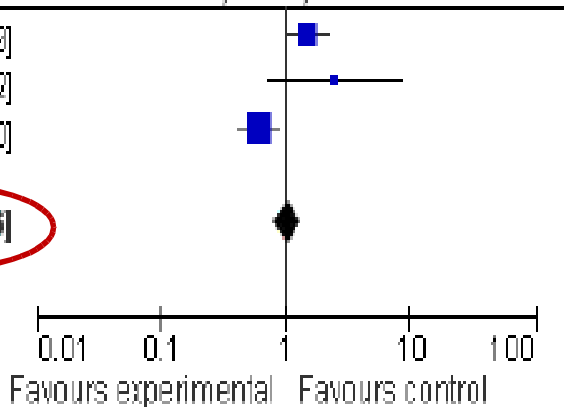
Figure 13. Forest plot of comparison: 4 Preoperative standard oral nutrition compared to no nutrition, outcome: 4.1 Total complications.

Study or Subgroup	Experimental Events	Experimental Total	Control Events	Control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Burden 2011	33	54	25	62	39.1%	1.52 [1.05, 2.19]
MacFie 2000	7	24	3	25	4.9%	2.43 [0.71, 8.32]
Smedley 2004	20	48	34	50	56.0%	0.61 [0.42, 0.90]
Total (95% CI)		**126**		**137**	**100.0%**	**1.06 [0.82, 1.36]**
Total events	60		62			

Heterogeneity: Chi² = 13.10, df = 2 (P = 0.001); I² = 85%

Test for overall effect: Z = 0.41 (P = 0.68)



Pazienti chirurgici (patologie addominali)

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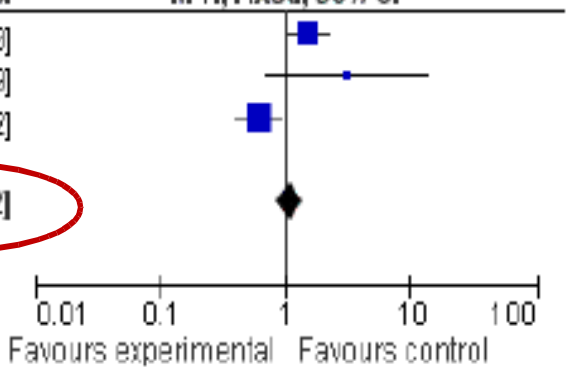
Figure 14. Forest plot of comparison: 4 Preoperative standard oral nutrition compared to no nutrition, outcome: 4.2 Infectious complications.

Study or Subgroup	Experimental Events	Experimental Total	Control Events	Control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Burden 2011	33	54	25	62	43.0%	1.52 [1.05, 2.19]
MacFie 2000	6	24	3	25	3.6%	3.13 [0.70, 13.99]
Smedley 2004	17	41	30	44	53.4%	0.61 [0.40, 0.92]
Total (95% CI)		**119**		**131**	**100.0%**	**1.09 [0.83, 1.42]**
Total events	56		57			

Heterogeneity: Chi² = 12.50, df = 2 (P = 0.002); I² = 84%

Test for overall effect: Z = 0.63 (P = 0.53)



Nutrizione Enterale o Nutrizione Parenterale? (patologie addominali)

Enteral versus parenteral nutrition for acute pancreatitis (Review)

Al-Omran M, AlBalawi ZH, Tashkandi MF, Al-Ansary LA

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-La pancreatite acuta (evoluzione necrotizzante) è una patologia che richiede un consumo calorico notevolmente aumentato
-Nei pazienti con grave evoluzione (sepsi) non è possibile una alimentazione per OS
-Nei pazienti critici il mantenimento dell'attività intestinale è di fondamentale importanza per una risposta immunologica alla produzione di citochinine (acidosi metabolica severa)

Nutrizione Enterale o Nutrizione Parenterale? (patologie addominali)

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-Uno dei quesiti di maggior interesse per la gestione dei pazienti critici con patologie multiorgano di origine addominale è: nutrizione enterale (NE)o parenterale (NP)?

Nutrizione Enterale o Nutrizione Parenterale? (patologie addominali)

Enteral versus parenteral nutrition for acute pancreatitis (Review)

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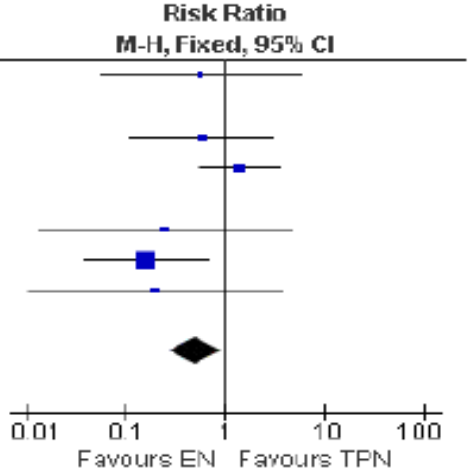
Figure 3. Forest plot of comparison: 1 Enteral versus parenteral nutrition for acute pancreatitis, outcome: 1.1 Mortality.

Study or Subgroup	Favours EN Events	Total	TPN Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI	Year
Kalfarentzos 1997	1	18	2	20	6.6%	0.56 [0.05, 5.62]	1997
McClave 1997	0	16	0	16		Not estimable	1997
Olah 2002	2	41	4	48	12.6%	0.59 [0.11, 3.03]	2002
Abou-Assi 2002	8	26	6	27	20.5%	1.38 [0.56, 3.44]	2002
Gupta 2003	0	8	0	9		Not estimable	2003
Louie 2005	0	10	3	18	8.9%	0.25 [0.01, 4.35]	2005
Petrov 2006	2	35	12	34	42.4%	0.16 [0.04, 0.67]	2006
Casas 2007	0	11	2	11	8.7%	0.20 [0.01, 3.74]	2007
Total (95% CI)		**165**		**183**	**100.0%**	**0.50 [0.28, 0.91]**	
Total events	13		29				

Heterogeneity: Chi² = 7.84, df = 5 (P = 0.17); I² = 36%

Test for overall effect: Z = 2.28 (P = 0.02)



Nutrizione Enterale o Nutrizione Parenterale? (patologie addominali)

Enteral versus parenteral nutrition for acute pancreatitis (Review)

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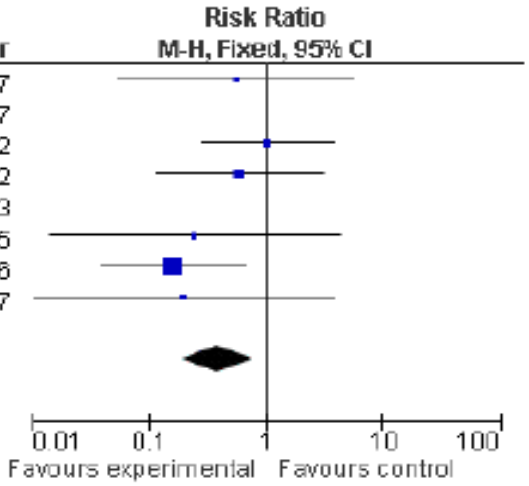
Figure 4. Forest plot of comparison: 1 Enteral versus parenteral nutrition for acute pancreatitis, outcome: 1.2 Mortality in patients with acute pancreatitis excluding those from (Kalfarentzos 1997) in which death resulted after resolution of acute pancreatitis and was attributed to other causes; cardiac surgery, cancer of the liver, squamous cell carcinoma of the pharynx and intracerebral hemorrhage..

	Favours EN		TPN			Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% CI	Year
Kalfarentzos 1997	1	18	2	20	7.1%	0.56 [0.05, 5.62]	1997
McClave 1997	0	16	0	16		Not estimable	1997
Abou-Assi 2002	4	26	4	27	14.7%	1.04 [0.29, 3.72]	2002
Olah 2002	2	41	4	48	13.8%	0.59 [0.11, 3.03]	2002
Gupta 2003	0	8	0	9		Not estimable	2003
Loule 2005	0	10	3	18	9.6%	0.25 [0.01, 4.35]	2005
Petrov 2006	2	35	12	34	45.5%	0.16 [0.04, 0.67]	2006
Casas 2007	0	11	2	11	9.3%	0.20 [0.01, 3.74]	2007
Total (95% CI)		**165**		**183**	**100.0%**	**0.39 [0.20, 0.77]**	
Total events	9		27				

Heterogeneity: Chi² = 4.36, df = 5 (P = 0.50); I² = 0%

Test for overall effect: Z = 2.70 (P = 0.007)



Nutrizione Enterale o Nutrizione Parenterale? (patologie addominali)

Enteral versus parenteral nutrition for acute pancreatitis (Review)

Al-Omran M, AlBalawi ZH, Tashkandi MF, Al-Ansary LA

THE COCHRANE COLLABORATION®

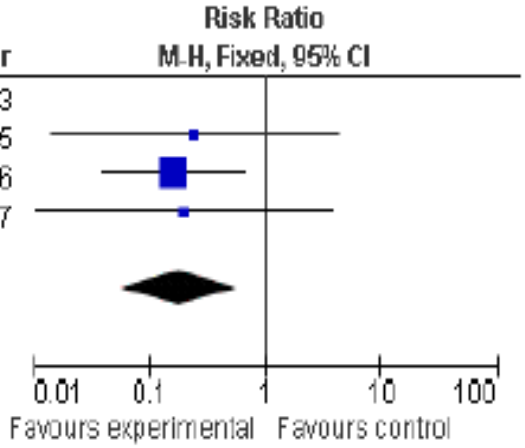
Evoluzione necrotico - emorragica

Figure 5. Forest plot of comparison: 1 Enteral versus parenteral nutrition for acute pancreatitis, outcome: 1.2 Mortality in patients with severe acute pancreatitis (SAP).

Study or Subgroup	Favours EN Events	Total	TPN Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI	Year
Gupta 2003	0	8	0	9		Not estimable	2003
Louie 2005	0	10	3	18	14.9%	0.25 [0.01, 4.35]	2005
Petrov 2006	2	35	12	34	70.6%	0.16 [0.04, 0.67]	2006
Casas 2007	0	11	2	11	14.5%	0.20 [0.01, 3.74]	2007
Total (95% CI)		**64**		**72**	**100.0%**	**0.18 [0.06, 0.58]**	
Total events	2		17				

Heterogeneity: Chi² = 0.07, df = 2 (P = 0.96); I² = 0%

Test for overall effect: Z = 2.89 (P = 0.004)



Nutrizione Enterale o Nutrizione Parenterale? (patologie addominali)

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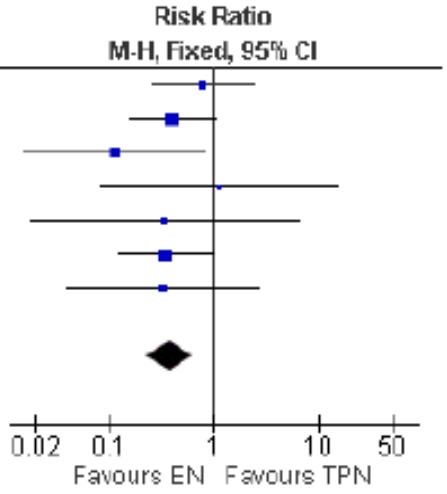
Figure 13. Forest plot of comparison: 6 Enteral versus parenteral nutrition for acute pancreatitis, outcome: 6.1 Systemic infection.

Study or Subgroup	Treatment Events	Treatment Total	Control Events	Control Total	Weight	Risk Ratio M-H, Fixed, 95% CI	Year
McClave 1997	4	16	5	16	12.1%	0.80 [0.26, 2.45]	1997
Kalfarentzos 1997	4	18	11	20	25.3%	0.40 [0.16, 1.05]	1997
Abou-Assi 2002	1	26	9	27	21.4%	0.12 [0.02, 0.85]	2002
Gupta 2003	1	8	1	9	2.3%	1.13 [0.08, 15.19]	2003
Louie 2005	0	10	2	18	4.5%	0.36 [0.02, 6.56]	2005
Petrov 2006	4	35	11	34	27.1%	0.35 [0.12, 1.00]	2006
Casas 2007	1	11	3	11	7.3%	0.33 [0.04, 2.73]	2007
Total (95% CI)		**124**		**135**	**100.0%**	**0.39 [0.23, 0.65]**	
Total events	15		42				

Heterogeneity: Chi² = 3.76, df = 6 (P = 0.71); I² = 0%

Test for overall effect: Z = 3.58 (P = 0.0003)



Nutrizione Enterale o Nutrizione Parenterale? (patologie addominali)

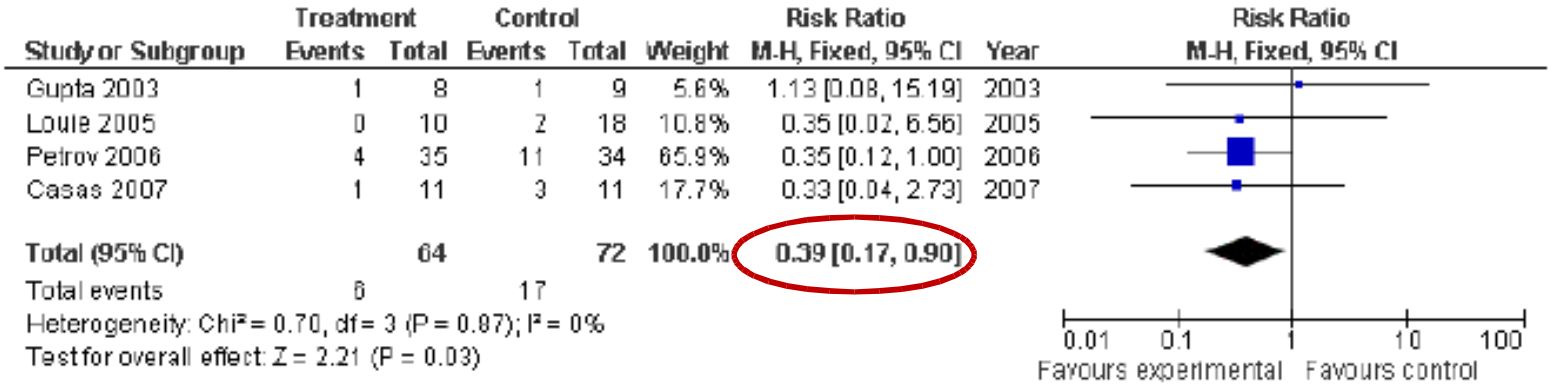
Enteral versus parenteral nutrition for acute pancreatitis (Review)

Al-Omran M, AlBalawi ZH, Tashkandi MF, Al-Ansary LA

THE COCHRANE COLLABORATION®

Evoluzione necrotico - emorragica

Figure 14. Forest plot of comparison: 6 Enteral versus parenteral nutrition for acute pancreatitis, outcome: 6.2 Systemic infection in SAP.



Pazienti chirurgici (tutte le patologie)

Postsurgical Infections are Reduced with Specialized Nutrition Support

Dan L. Waitzberg, MD,[1] Hideaki Saito, MD,[2] Lindsay D. Plank, PhD,[3]
Glyn G. Jamieson, MD,[4] Palepu Jagannath, MD,[5] Tsann-Long Hwang, MD,[6]
Juan M. Mijares, MD,[7] David Bihari, MD[8]

World J Surg (2006) 30: 1592–1604
DOI: 10.1007/s00268-005-0657-x

-L'utilizzo di nutrienti immunomodulatori (oltre ad una nutrizione adeguata) risulta essere un trattamento efficace nella diminuzione delle complicanze infettive post-chirurgiche (fino al 55% negli interventi di cardiochirurgia)

Pazienti chirurgici (tutte le patologie)

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Randomized studies evaluating IMPACT as a pre-, peri-, or postoperative treatment in elective surgery

Reference	Study year, country	Jadad scale	Blinding	Study analysis	Patient number	Patient group	Control feed(s)	Initiation of feed before/after surgery
Preoperative IMPACT studies								
Amsterdam study (unpublished)	1998–2000, The Netherlands	5	Yes	PP	48	Cardiac	IN, IC	5 days/–
Berne study (unpublished)	1998–1999, Switzerland	2	No	ITT	29	UGS	Preop: nil Postop: impact	5 days/6 hours
29	1998–2000, Italy	3	No	ITT	100	UGS+LGS	Preop: nil Postop: IN, IC	7 days/–
28	1998–2000, Italy	3	No	ITT	204	UGS+LGS	Preop: nil Postop: i.v. solution	5 days/–
30	–, Italy	3	No	ITT	100	LGS	IN, IC	5 days/–
1	1996–1997, The Netherlands	5	Yes	PP	45	cardiac	IN, IC	5 days/–
Perioperative IMPACT studies								
Sydney study (unpublished)	1999–2001, Australia	2	Yes	PP	126	LGS	IN, IC	5 days/6 hours
29	1998–2000, Italy	3	No	ITT	100	UGS+LGS	IN, IC	7 days/within 12 hours
28	1998–2000, Italy	3	No	ITT	203	UGS+LGS	Preop: nil Postop: i.v. solution	5 days/within 12 hours
30	–, Italy	3	No	ITT	100	LGS	Nil	5 days/6 hours
39	–, Italy	4	Yes	ITT	206	UGS+LGS	IN, IC	7 days/6 hours
38	1994–1996, USA	5	Yes	ITT	129	H+NCS	Standard formula	5 days/–
37	1994–1997, Germany	3	Yes	PP	154	UGS	IN, IC	5 days/12 hours
Postoperative IMPACT studies								
36	–, China	4	Yes	PP	118	UGS	IN, IC	–/third postop day
35	1993–1997, Italy	1	No	ITT	260	UGS	IN, IC + parenteral	–/6 hours
34	1994–1996, USA	2	No	ITT	195	UGS	i.v. crystalloids	–/within 24 hours
33	1992–1994, Germany	5	Yes	PP	154	UGS	IN, IC	–/12 hours
32	–, Switzerland	2	No	PP	41	UGS+LGS	Standard formula + i.v. solution	–/as early as possible
31	–, USA	2	No	ITT	60	UGS	Standard formula	–/first postop day
7	1988–1990, USA	2	No	ITT	85	UGS	Standard formula	–/first postop day

UGS: upper GI surgery; *LGS*: lower GI surgery; *H+NCS*: head and neck cancer surgery; *PP*: Per protocol; *ITT*: intent to treat; IN: isonitrogenous; IC: isocaloric; –: no standard protocol/not reported.

Pazienti chirurgici (tutte le patologie)

Postsurgical Infections are Reduced with Specialized Nutrition Support

Dan L. Waitzberg, MD,[1] Hideaki Saito, MD,[2] Lindsay D. Plank, PhD,[3] Glyn G. Jamieson, MD,[4] Palepu Jagannath, MD,[5] Tsann-Long Hwang, MD,[6] Juan M. Mijares, MD,[7] David Bihari, MD[8]

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ndomized studies in elective surgery patients evaluating the effect of preoperative application of IMPACT on mortality, rate of infectious complications, and length of stay in hospital (LOS)

Study	Mortality, number/ total (%)		Patients with infectious complications, number/total (%)		Hospital days, mean (SD)	
	Preoperative*	Control	Preoperative**	Control	Preoperative***	Control
sterdam study (unpublished)[a]	0/23 (0)	1/24 (4)	4/23 (17)	12/24 (50)	7.6 (3.0)	9.0 (4.5)
rne study (unpublished)[b]	1/14 (7)	0/15 (0)	2/14 (14)	10/15 (67)	19.7 (2.3)	29.1 (3.6)
	1/50 (2)	2/50 (4)	8/50 (16)	12/50 (24)	13.2 (3.5)	15.3 (4.1)
	1/102 (1)	1/102 (1)	14/102 (13)	31/102 (30)	11.6 (4.7)	14.0 (7.7)
	0/50 (0)	1/50 (0)	6/50 (12)	15/50 (30)	9.5 (2.9)	12.2 (3.9)
	1/23 (4)	1/22 (5)	4/23 (17)	12/22 (55)	9.6 (5.3)[d]	11.7 (12.0)[d]

*RR 0.74, 95% CI 0.23–2.35, P =0.609 vs. control.

**RR 0.42, 95% CI 0.23–0.59, $P < 0.0001$ versus control.

***Effect size (ES) (–)0.71, 95% CI (–)1.14–(–)0.28, P =0.001 vs. control, pooled difference (–)3.4 days, 95% CI (–)5.6–1.2 days.

Postoperative feed: [a]No artificial feeding; [b]IMPACT; [c]Standard formula; [d]Means ± SD provided by main investigator.

Pazienti chirurgici (tutte le patologie)

Postsurgical Infections are Reduced with Specialized Nutrition Support

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World J Surg (2006) 30: 1592–1604
DOI: 10.1007/s00268-005-0657-x

andomized studies in elective surgery patients evaluating the effect of *perioperative application* of IMPACT on mortality, rate of infectious complications, and LOS in hospital

Study	Mortality, number/ total (%)		Patients with infectious complications, number/total (%)		Hospital days, mean (SD)	
	Perioperative	Control	Perioperative*	Control	Perioperative**	Control
rdney study (unpublished)	0/61 (0)	3/65 (5)	15/61 (25)	32/65 (49)	11.4 (4.0)	12.7 (5.8)
	0/50	2/50 (4)	5/50 (10)	12/50 (24)	12.0 (3.8)	15.3 (4.1)
	2/101 (2)	1/102 (1)	16/101 (16)	31/102 (30)	12.2 (4.1)	14.0 (7.7)
	1/50 (2)	0/50 (0)	5/50 (10)	16/50 (32)	9.8 (3.1)	12.0 (4.5)
	0/102 (0)	1/104 (1)	14/102 (14)	31/104 (30)	11.1 (4.4)	12.9 (4.6)
	0/82 (0)	0/47 (0)	19/82 (25)	19/47 (41)	15.3 (9.1)	17.4 (11.9)
	0/78 (0)	0/76 (0)	10/78 (13)	18/76 (24)	22.2 (4.1)	25.8 (3.8)

*RR 0.49, 95% CI 0.39–0.62, $P < 0.0001$ vs. control.

**ES (–)0.48, 95% CI (–)0.68–(–)0.28, $P < 0.0001$ vs. control, pooled difference (–)2.4 days, 95% CI (–)3.1–(–)1.7 days.

Pazienti chirurgici (tutte le patologie)

Postsurgical Infections are Reduced with Specialized Nutrition Support

Dan L. Waitzberg, MD,[1] Hideaki Saito, MD,[2] Lindsay D. Plank, PhD,[3] Glyn G. Jamieson, MD,[4] Palepu Jagannath, MD,[5] Tsann-Long Hwang, MD,[6] Juan M. Mijares, MD,[7] David Bihari, MD[8]

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Randomized studies in elective surgery patients evaluating the effect of the postoperative application of IMPACT on mortality, rate of infectious complications, and LOS in hospital

	Mortality, number/ total (%)		Patients with infectious complications, number/total (%)		Hospital days, mean (SD)	
Study	Postoperative	Control	Postoperative	Control	Postoperative	Control
36	0/60 (0)	0/58 (0)	0/60 (0)*,**	2/58 (3)	13.1 (2.5)#,†	14.5 (3.0)
35	1/87 (1.1)	2/87 (2.3)	13/87 (15)*,**	20/87 (23)	16.1 (6.2)#,†	19.2 (7.9)
33	3/77 (3.9)	2/77 (2.6)	14/77 (18)*,**	19/77 (25)	27.0 (2.3)#,†	30.6 (3.1)
32	0/14 (0)	0/14 (0)	3/14 (21)*,**	6/14 (43)	14.5 (8)#,†	14.0 (19)
31	1/30 (3.3)	2/30 (6.6)	1/30 (3)*,**	11/30 (37)	16 (0.9)#,†	22 (2.9)
7	2/41 (4.9)	0/44 (0)	5/41 (12)*,**	13/44 (30)	18.8 (11.1)#,†	20.4 (9.6)
35	1/87 (1.1)	2/86 (2.3) (i.v.)	13/87 (15)*,***	24/86 (28) (i.v.)	16.1 (6.2)#,‡	21.6 (8.9) (i.v.)
34	2/97 (2.1)	3/98 (3.1) (i.v.)	NR	NR	11 (4–41)#,‡,a	10 (6–75)a (i.v.)
32	0/14 (0)	0/14 (0) (i.v.)	3/14 (21)*,***	6/14 (43) (i.v.)	14.5 (8)#,‡	14.0 (10.3) (i.v.)

NR: Not reported.

*RR 0.55, 95% CI 0.41–0.75, $P = 0.0001$ vs. enteral + i.v. control.

**RR 0.56, 95% CI 0.39–0.82, $P = 0.003$ vs. enteral control.

***RR 0.53, 95% CI 0.31–0.91, $P = 0.02$ vs. i.v. control.

#ES (−)0.73, 95% CI (−)1.18–(−)0.29, $P = 0.001$ vs. enteral + i.v. control, pooled difference (−)3.5 days, 95% CI (−)5.1–(−)1.9 days.

†ES (−)0.84, 95% CI (−)1.43–(−)0.24, $P = 0.006$ vs. enteral control.

‡ES (−)0.47, 95% CI (−)1.1–0.16, $P = 0.145$ vs. i.v. control.

[a]Median (range).

Pazienti area critica (ICU)

Nutrition of the Critically Ill—A 21st-Century Perspective

Stig Bengmark

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Nutrients **2013**, *5*, 162-207; doi:10.3390/nu5010162

-Ogni anno circa 25 milioni di persone sono sottoposte ad un intervento chirurgico che richiede un post operatorio in terapia intensiva. Tra questi circa 3 milioni non usciranno dall'ospedale

-Tra le complicanze più frequenti nel post-operatorio, la sepsi severa rappresenta quella a più alta mortalità (25-30%)

Pazienti area critica (ICU)

Nutrition of the Critically Ill—A 21st-Century Perspective

Stig Bengmark

Division of Surgery & Interventional Science, University College London, 4th floor, 74 Huntley Street, London, WC1E 6AU, UK; E-Mail: stig@bengmark.se; Tel.: +44-20-7511-6842

Nutrients **2013**, *5*, 162-207; doi:10.3390/nu5010162

-Una corretto apporto di nutrienti, per via enterale NE, nei pazienti critici con sepsi, diminuisce il rischio di traslocazione batterica tra intestino e circolo ematico

-L'utilizzo di nutrizione parenterale nel paziente critico , aumenta del 25% il rischio di infezione sistemica BSI/CRBSI

Pazienti area critica (ICU)

Nutrizione e terapia antibiotica in terapia intensiva cardiologica

Raffaele De Gaudio[1], Valentina Selmi[2], Cosimo Chelazzi[1]

[1]*Cattedra di Anestesiologia e Rianimazione, Dipartimento di Area Critica Medico-Chirurgica,*
[2]*Scuola di Specializzazione in Anestesiologia, Rianimazione e Terapia Intensiva, Università degli Studi, Firenze*

(G Ital Cardiol 2010; 11 (4): 274-284)

-Nel paziente critico, la gestione dell'assetto metabolico costituisce una fase fondamentale per la sopravvivenza. Ipermetabolismo e insulinoresistenza devono essere contrastate in maniera corretta.

-La malnutrizione di un paziente critico aggrava il suo assetto immunutario, (già compromesso) incidendo pesantemente sulla mortalità.

-La più colpita dalla malnutrizione, tra le funzioni di barriera, è quella intestinale, la quale non contrasta la traslocazione batterica e la suscettibilità generale alle infezioni.

Pazienti area critica (ICU)

Nutrizione e terapia antibiotica in terapia intensiva cardiologica

Raffaele De Gaudio[1], Valentina Selmi[2], Cosimo Chelazzi[1]

[1]*Cattedra di Anestesiologia e Rianimazione, Dipartimento di Area Critica Medico-Chirurgica,*
[2]*Scuola di Specializzazione in Anestesiologia, Rianimazione e Terapia Intensiva, Università degli Studi, Firenze*

(G Ital Cardiol 2010; 11 (4): 274-284)

-L a nutrizione enterale NE garantisce il normale trofismo della mucosa intestinale mantenendo integrità strutturale, fondamentale per contrastare la traslocazione batterica

-Una NE enterale precoce (24-48), nei pazienti critici, riduce la mortalità e le complicanze settiche

-La nutrizione parenterale è associata ad un aumento delle infezioni sistemiche (effetto immunosoppressore dei lipidi per via EV)

Pazienti ustionati

High-carbohydrate, high-protein, low-fat versus low-carbohydrate, high-protein, high-fat enteral feeds for burns (Review)

THE COCHRANE COLLABORATION®

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2012, Issue 1

-Un gruppo di studi svolti dal 1971 al 1975 hanno dimostrato una riduzione della mortalità per sepsi di oltre 80% , nei pazienti ustionati (oltre 50% della SC) che ricevevano una adeguata alimentazione

-Un inappropriato apporto di nutrienti, nei pazienti ustionati aumenta il rischio di complicanze cardiopolmonari, diminuzione della massa muscolare (a favore di quella grassa) facilita alo svilupparsi di infezioni del tratto respiratorio.

Pazienti ustionati

High-carbohydrate, high-protein, low-fat versus low-carbohydrate, high-protein, high-fat enteral feeds for burns (Review)

THE COCHRANE COLLABORATION®

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2012, Issue 1

-Una nutrizione ad alto contenuto di carboidrati e proteine e basso contenuto di grassi, somministrata per via Enterale, diminuisce il rischio infettivo , con particolare riferimento alle polmoniti

Pazienti ustionati

High-carbohydrate, high-protein, low-fat versus low-carbohydrate, high-protein, high-fat enteral feeds for burns (Review)

THE COCHRANE COLLABORATION®

Analysis 1.2. Comparison 1 High-carbohydrate vs high-fat enteral feeding, Outcome 1 Risk of pneumonia.

Review: High-carbohydrate, high-protein, low-fat versus low-carbohydrate, high-protein, high-fat enteral feeds for burns

Comparison: 1 High-carbohydrate vs high-fat enteral feeding

Outcome: 2 Risk of pneumonia

Study or subgroup	High-carbohydrate n/N	High-fat n/N	Odds Ratio M-H,Random,95% CI	Weight	Odds Ratio M-H,Random,95% CI
Garrel 1995	3/24	7/13		49.9 %	0.12 [0.02, 0.62]
Gottschlich 1990a	2/17	17/33		50.1 %	0.13 [0.02, 0.64]
Total (95% CI)	**41**	**46**		**100.0 %**	**0.12 [0.04, 0.39]**

Total events: 5 (High-carbohydrate), 24 (High-fat)

Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.00$, df = 1 (P = 0.98); $I^2 = 0.0\%$

Test for overall effect: Z = 3.56 (P = 0.00038)

Test for subgroup differences: Not applicable

0.02 0.1 1 10 50

Favours high-carbohydrate Favours high-fat

Pazienti ustionati

High-carbohydrate, high-protein, low-fat versus low-carbohydrate, high-protein, high-fat enteral feeds for burns (Review)

THE COCHRANE COLLABORATION®

Analysis 1.2. Comparison 1 High-carbohydrate vs high-fat enteral feeding, Outcome 1 Risk of pneumonia.

Review: High-carbohydrate, high-protein, low-fat versus low-carbohydrate, high-protein, high-fat enteral feeds for burns

Comparison: 1 High-carbohydrate vs high-fat enteral feeding

Outcome: 2 Risk of pneumonia

Study or subgroup	High-carbohydrate n/N	High-fat n/N	Odds Ratio M-H,Random,95% CI	Weight	Odds Ratio M-H,Random,95% CI
Garrel 1995	3/24	7/13		49.9 %	0.12 [0.02, 0.62]
Gottschlich 1990a	2/17	17/33		50.1 %	0.13 [0.02, 0.64]
Total (95% CI)	**41**	**46**		**100.0 %**	**0.12 [0.04, 0.39]**

Total events: 5 (High-carbohydrate), 24 (High-fat)

Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.00$, df = 1 ($P = 0.98$); $I^2 = 0.0\%$

Test for overall effect: $Z = 3.56$ ($P = 0.00038$)

Test for subgroup differences: Not applicable

0.02 0.1 1 10 50

Favours high-carbohydrate Favours high-fat

Pazienti geriatrici

POOR NUTRITIONAL STATUS IS ASSOCIATED WITH URINARY TRACT INFECTION AMONG OLDER PEOPLE LIVING IN RESIDENTIAL CARE FACILITIES

M. CARLSSON[1], L. HAGLIN[2], E. ROSENDAHL[1,3], Y. GUSTAFSON[1]

The Journal of Nutrition, Health & Aging©
Volume 17, Number 2, 2013

-Nel paziente anziano lo stato nutrizionale assume un ruolo fondamentale nel determinare lo stato di salute.

-La malnutrizione è un evento frequente nei pazienti anziani residenti in strutture (21-71%)

-L'alta prevalenza di malnutrizione nella popolazione anziana è fortemente associata con le infezioni delle vie urinarie.

Pazienti geriatrici

POOR NUTRITIONAL STATUS IS ASSOCIATED WITH URINARY TRACT INFECTION AMONG OLDER PEOPLE LIVING IN RESIDENTIAL CARE FACILITIES

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Table 2

Age, sex, assessments, type and number of drugs, and medical conditions in older people living in residential care facilities and their associations with MNA scores at baseline

	MNA mean ± SD		B[a]	95% CI for B	β[b]	P value[c]	P value[d]
Age	—	—	−0.1	−0.2 — 0.0	−0.1	0.055	0.116
Women (y/n)	20.3 ± 3.7	21.1 ± 3.8	−0.8	−2.0 — 0.4	−0.1	0.172	0.829
MMSE	—	—	0.2	0.1 — 0.3	0.2	0.002	0.030
GDS	—	—	−0.2	−0.4 — 0.0	−0.2	0.019	0.173
Barthel	—	—	0.3	0.2 — 0.5	0.4	<0.001	
Dependent in feeding[e] (y/n)	18.7 ± 3.7	21.0 ± 3.5	−2.3	−3.5 — −1.1	−0.3	<0.001	0.049
Laxatives (y/n)	20.0 ± 3.6	21.0 ± 3.7	−1.0	−2.1 — 0.0	−0.1	0.057	
Antidepressants (y/n)	20.2 ± 4.0	20.7 ± 3.4	−0.5	−1.6 — 0.6	−0.1	0.346	
Diuretics (y/n)	20.0 ± 3.7	21.0 ± 3.7	−1.0	−2.0 — 0.1	−0.1	0.077	0.116
Analgesics (ASA) (y/n)	20.8 ± 3.6	20.2 ± 3.8	0.5	−0.5 — 1.6	0.0	0.328	
Benzodiazepines (y/n)	20.4 ± 3.9	20.5 ± 3.4	0.1	−1.0 — 1.2	0.01	0.857	
Oestrogens[f] (y/n)	19.4 ± 4.2	20.9 ± 3.4	−1.4	−2.6 — −0.2	−0.2	0.239	
Neuroleptics (y/n)	20.2 ± 4.3	20.5 ± 3.5	−0.3	−1.6 — 1.0	−0.0	0.618	
Pruton pumps inhibitors (y/n)	19.7 ± 2.6	20.7 ± 3.9	−0.9	−2.2 — 0.4	−0.1	0.155	
Number of drugs (y/n)	—	—	−0.1	−0.2 — 0.0	−0.1	0.054	0.842
Depression (y/n)	20.1 ± 3.5	21.0 ± 4.0	−0.9	−1.9 — 0.2	−0.1	0.126	
Constipation (y/n)	19.9 ± 3.7	21.2 ± 3.6	−1.4	−2.4 — −0.3	−0.2	0.013	0.653
Dementia (y/n)	20.1 ± 4.0	20.9 ± 4.4	−0.7	−1.8 — 0.4	−0.1	0.189	
UTI preceding year (y/n)	19.3 ± 4.0	21.4 ± 3.2	−2.0	−3.1 — −1.0	−0.3	<0.001	0.006
Previous stroke (y/n)	19.9 ± 3.6	20.7 ± 3.7	−0.8	−2.0 — 0.4	−0.1	0.185	
Heart failure (y/n)	20.1 ± 3.6	20.6 ± 3.8	−0.6	−1.8 — 0.6	−0.1	0.349	
Diabetes (y/n)	21.5 ± 3.3	20.2 ± 3.8	1.3	−0.1 — 2.6	0.1	0.066	
Gastric ulcer (y/n)	19.6 ± 2.7	20.7 ± 3.9	−1.0	−2.3 — 0.3	-0.1	0.131	
UTI current (y/n)	19.2 ± 4.0	20.8 ± 3.6	−1.6	−3.0 — −0.2	−0.2	0.025	
Hip fracture (y/n)	20.7 ± 3.1	20.4 ± 3.8	0.3	−1.2 — 1.8	0.0	0.683	
Malignancy (y/n)	20.4 ± 4.0	20.5 ± 3.7	−0.1	−1.7 — 1.5	−0.0	0.930	
Pneumonia (y/n)	17.9 ± 4.7	20.7 ± 3.6	−2.7	−4.8 — −0.7	−0.2	0.010	0.659
Indwelling urinary catheter (y/n)	18.5 ± 3.9	20.6 ± 3.7	−2.1	−4.3 — 0.2	−0.1	0.075	

y/n = yes vs no for each variable concerning MNA scores, MNA = Mini Nutritional Assessment, CI = Confidence Interval, ASA = Acetylsalicylic Acid, MMSE = Mini Mental State Examination, GDS = Geriatric Depression Scale. a. B= Unstandardized coefficients, b. β = Standardized coefficients Beta, c. Univariate linear regression, d. Multiple linear regression, e. The multivariate regression model explained 20% of the variance of MNA scores, i.e. Only systemic treatment oestrogens, f. Dependent or partly dependent (needs help cutting, spreading butter etc) versus independent.

Pazienti geriatrici

POOR NUTRITIONAL STATUS IS ASSOCIATED WITH URINARY TRACT INFECTION AMONG OLDER PEOPLE LIVING IN RESIDENTIAL CARE FACILITIES

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	MNA			
Factors, (yes vs. no)	Malnourished <17 (n = 28)	Risk of malnutrition 17–23.5 (n = 124)	Well–nourished > 24 (n = 36)	P–value
UTI in preceding year	19 (68)*	54 (44)	11 (31)*	0.040*
Dependent in feeding[c]	12 (43)*	30 (24)	4 (11)*	0.014*
MMSE	15.6 ± 4.5*	17.7 ± 5.1	19.2 ± 5.3*	0.024[d]

Abbreviations. MNA = Mini Nutritional Assessment. UTI = urinary tract infection. MMSE = Mini Mental State Examination. *Groups that are significantly different from one another at the P < 0.05 level. a. Values are given as mean ± SD or as n (%). b. Comparison between participants in the three MNA categories, chi-square test. c. Dependent or partly dependent (needs help cutting, spreading butter, etc.) versus independent. d. Comparison between participants in the three MNA categories (ANOVA) and post hoc test.

Conclusioni : le raccomandazioni delle LG

ESPEN Guidelines on Enteral Nutrition: Gastroenterology ☆

H. Lochs[a,*], C. Dejong[b], F. Hammarqvist[c], X. Hebuterne[d], M. Leon-Sanz[e], T. Schütz[a], W. van Gemert[b], A. van Gossum[f], L. Valentini[a], DGEM: ☆☆ H. Lübke, S. Bischoff, N. Engelmann, P. Thul

Clinical Nutrition (2006) 25, 260–274

Use tube feeding and/or oral nutritional supplements in addition to normal food to improve nutritional status and to eliminate consequences of undernutrition such as growth retardation.	A	3.1/3.2
Using oral nutritional supplements, a supplementary intake of up to 600 kcal/day can be achieved in addition to normal food.	A	

Conclusioni : le raccomandazioni delle LG

ESPEN Guidelines on Enteral Nutrition: Intensive care ☆

K.G. Kreymann[a,*], M.M. Berger[b], N.E.P. Deutz[c], M. Hiesmayr[d], P. Jolliet[e], G. Kazandjiev[f], G. Nitenberg[g], G. van den Berghe[h], J. Wernerman[i], DGEM: ☆☆ C. Ebner, W. Hartl, C. Heymann, C. Spies

Clinical Nutrition (2006) 25, 260–274

Avoid additional parenteral nutrition in patients who tolerate EN and can be fed approximately to the target values. A

Immune-modulating formulae (formulae enriched with arginine, nucleotides and ω-3 fatty acids) are superior to standard enteral formulae:

- in elective upper GI surgical patients (see guidelines surgery). A 10.1

Conclusioni : le raccomandazioni delle LG

ESPEN Guidelines on Enteral Nutrition: Intensive care ☆

K.G. Kreymann[a,*], M.M. Berger[b], N.E.P. Deutz[c], M. Hiesmayr[d], P. Jolliet[e], G. Kazandjiev[f], G. Nitenberg[g], G. van den Berghe[h], J. Wernerman[i], DGEM: ☆☆ C. Ebner, W. Hartl, C. Heymann, C. Spies

Clinical Nutrition (2006) 25, 260–274

Glutamine should be added to standard enteral formula in

- burned patients — A
- trauma patients — A

Conclusioni : le raccomandazioni delle LG

ESPEN Guidelines on Enteral Nutrition: Surgery including Organ Transplantation ☆

A. Weimann[a,*], M. Braga[b], L. Harsanyi[c], A. Laviano[d], O. Ljungqvist[e], P. Soeters[f], DGEM: ☆☆ K.W. Jauch, M. Kemen, J.M. Hiesmayr, T. Horbach, E.R. Kuse, K.H. Vestweber

Clinical Nutrition (2006) 25, 260–274

Use nutritional support in patients with severe nutritional risk for 10–14 days prior to major surgery even if surgery has to be delayed. A

Severe nutritional risk refers to at least one:

- Weight loss > 10–15% within 6 months
- BMI < 18.5 kg/m^2
- Subjective Global Assessment Grade C
- Serum albumin < 30 g/l (with no evidence of hepatic or renal dysfunction)

Conclusioni : le raccomandazioni delle LG

ESPEN Guidelines on Enteral Nutrition: Surgery including Organ Transplantation ☆

A. Weimann[a,*], M. Braga[b], L. Harsanyi[c], A. Laviano[d], O. Ljungqvist[e], P. Soeters[f], DGEM: ☆☆ K.W. Jauch, M. Kemen, J.M. Hiesmayr, T. Horbach, E.R. Kuse, K.H. Vestweber

Clinical Nutrition (2006) 25, 260–274

Patients undergoing surgery who are considered to have no specific risk for aspiration, may drink clear fluids until 2 h before anaesthesia. Solids are allowed until 6 h before anaesthesia.	A
Initiate normal food intake or enteral feeding early after gastrointestinal surgery.	A
Oral intake, including clear liquids, can be initiated within hours after surgery to most patients undergoing colon resections.	A

Conclusioni : le raccomandazioni delle LG

ESPEN Guidelines on Enteral Nutrition: Surgery including Organ Transplantation ☆

A. Weimann[a,*], M. Braga[b], L. Harsanyi[c], A. Laviano[d], O. Ljungqvist[e], P. Soeters[f], DGEM: ☆☆ K.W. Jauch, M. Kemen, J.M. Hiesmayr, T. Horbach, E.R. Kuse, K.H. Vestweber

Clinical Nutrition (2006) 25, 260–274

Apply tube feeding in patients in whom early oral nutrition cannot be initiated, with special regard to those

- undergoing major head and neck or gastrointestinal surgery for cancer — A
- with severe trauma — A
- with obvious undernutrition at the time of surgery — A

Initiate tube feeding for patients in need within 24h after surgery. — A

Conclusioni : le raccomandazioni delle LG

ESPEN Guidelines on Enteral Nutrition: Surgery including Organ Transplantation ☆

A. Weimann[a,*], M. Braga[b], L. Harsanyi[c], A. Laviano[d], O. Ljungqvist[e], P. Soeters[f], DGEM: ☆☆ K.W. Jauch, M. Kemen, J.M. Hiesmayr, T. Horbach, E.R. Kuse, K.H. Vestweber

Clinical Nutrition (2006) 25, 260–274

Use EN preferably with immuno-modulating substrates (arginine, ω-3 fatty acids and nucleotides) perioperatively independent of the nutritional risk for those patients — A

- undergoing major neck surgery for cancer (laryngectomy, pharyngectomy)
- undergoing major abdominal cancer surgery (oesophagectomy, gastrectomy, and pancreatoduodenectomy)
- after severe trauma.

Conclusioni : le raccomandazioni delle LG

ESPEN Guidelines on Enteral Nutrition: Surgery including Organ Transplantation ☆

A. Weimann[a,*], M. Braga[b], L. Harsanyi[c], A. Laviano[d], O. Ljungqvist[e], P. Soeters[f], DGEM: ☆☆ K.W. Jauch, M. Kemen, J.M. Hiesmayr, T. Horbach, E.R. Kuse, K.H. Vestweber

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Conclusioni : le raccomandazioni delle LG

Rivista Italiana di Nutrizione Parenterale ed Enterale / Anno 20 S5, pp. S120-S141 Wichtig Editore, 2002

Linee guida SINPE per la Nutrizione Artificiale Ospedaliera 2002 - Parte Speciale

Nutrizione Artificiale in terapia intensiva

3) Il supporto nutrizionale dovrebbe essere effettuato in tutti i pazienti con ipercatabolismo grave, moderato (questi ultimi, se in condizioni di stato nutrizionale normale, solo in caso di previsione di assunzione orale< 50% del fabbisogno per più di 7 giorni) e nei pazienti con malnutrizione severa o moderata con un apporto di nutrienti stimato o previsto come insufficiente per un periodo di 5 giorni (A).

4) Il supporto nutrizionale dovrebbe essere iniziato il più precocemente possibile (A). I nutrienti dovrebbero

6) La NPT dovrebbe essere presa in considerazione quando la via enterale non è assolutamente praticabile, quando esistono controindicazioni assolute alla NE, quando non ci sono le condizioni per assicurari una via di accesso sicuro all'apparato gastroenterico (B). Qua-

Conclusioni : le raccomandazioni delle LG

Rivista Italiana di Nutrizione Parenterale ed Enterale / Anno 20 S5, pp. S37-S43 Wichtig Editore, 2002

Linee guida SINPE per la Nutrizione Artificiale Ospedaliera 2002 - Parte Generale

Evidence-Based Nursing in Nutrizione Artificiale

1) Razionale: ruolo dell'infermiere in Nutrizione Artificiale

L'infermiere di Nutrizione Artificiale è un professionista che ha acquisito una particolare specializzazione nell'area della Nutrizione Clinica; opera in collaborazione con altre figure, con l'obiettivo di ristabilire o mantenere un ottimale stato nutrizionale nell'individuo con potenziali o accertati deficit nutrizionali.

L'infermiere partecipa alla formulazione del programma nutrizionale, nella indicazione al trattamento, nella scelta dell'accesso, nella pianificazione del programma nutrizionale a medio e lungo termine.

Le attività di competenza infermieristica sono:

- Collaborare a scegliere le modalità di somministrazione delle miscele nutrizionali e della scelta della via d'accesso
- Valutare il fabbisogno del materiale previsto nel piano di assistenza e mantenere i contatti con l'équipe farmaceutica per gli approvvigionamenti
- Relazionare periodicamente all'équipe medica circa l'andamento delle prestazioni erogate al paziente in nutrizione artificiale in termini di bisogni, problemi, interventi attuati e risultati
- Effettuare il training per il background abitativo quando è previsto un programma di prosecuzione della nutrizione artificiale al domicilio del paziente.

GRAZIE

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