



PREVENZIONE DELLE INFEZIONI DELLE FERITE CHIRURGICHE E GESTIONE DELLE MEDICAZIONI

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Lo schema che segue rappresenta un sunto delle principali evidenze scientifiche che abbiamo individuato nel corso del nostro lavoro. La ricerca si è svolta quasi esclusivamente attraverso Internet: abbiamo avuto modo di analizzare decine di documenti (articoli, linee guida, protocolli) concernenti il tema della gestione delle ferite chirurgiche e della prevenzione delle infezioni. Le "Guideline for prevention of surgical site infection, 1999" pubblicato all'interno del sito Centers for disease Control and prevention rappresentano sicuramente il documento più completo ed esaustivo, almeno per quanto concerne la prevenzione delle infezioni. Di questo documento, e delle fondamentali "Raccomandazioni" che contiene abbiamo prodotto una traduzione integrale che ovviamente è a disposizione di chiunque all'interno dell'azienda ne faccia richiesta. Le evidenze che seguono sono solo una piccola parte di quelle individuate: si è preferito dare maggiore evidenza a quegli aspetti che forse sono meno radicati nella pratica delle Unità Operative.

ASPETTI PREVENTIVI

Non ci sono indicazioni per effettuare la tricotomia, a meno che i peli attorno o sull'incisione non interferiscano con l'operazione (IA)
Se i peli devono essere rimossi è indispensabile farlo immediatamente prima dell'intervento con tosatrice elettrica (IA)
I fattori individuali che rappresentano in maniera certa un incremento del rischio di infezione della ferita sono il diabete mellito e l'abitudine al fumo di sigaretta (IB)
Sebbene la presenza di stafilococco aureo nelle vie aeree rappresenti un fattore di rischio certo non vi sono indicazioni per l'applicazione di mupirocin nelle narici come prevenzione
Gli antisettici più efficaci per la disinfezione della cute sono nell'ordine: alcool, povidone-iodio, clorexidina.
E' indispensabile che il personale chirurgico che abbia malattie infettive trasmissibili o lesioni aperte della cute si assenti dal servizio fino a che non sia esclusa ogni infezione (IB)
La profilassi antimicrobica va eseguita solo quando indicato, per via endovenosa in modo che i livelli sierici dell'antibiotico siano ottimali al momento dell'incisione. Se l'intervento non si prolunga e se non insorgono complicanze accertate non occorrono altre

somministrazioni (IA)
Non occorre effettuare pulizie particolari o chiusure delle sale operatorie dopo operazioni sporche o contaminate (IB)
E' indispensabile aderire ai principi di asepsi anche per gli interventi collaterali all'intervento (posizionamento cateteri venosi o spinali - preparazione e somministrazione farmaci e.v.) (IA)
L'assemblaggio dell'equipaggiamento sterile e dei liquidi di soluzione va effettuata immediatamente prima dell'intervento (II)
La medicazione della ferita può essere rimossa dopo 48 ore se l'incisione si è chiusa di prima intenzione (IB)
Non vi sono indicazioni certe per l'esecuzione di un bagno o di una doccia con la ferita scoperta
Vi sono indicazioni per calcolare, all'interno delle Unità Operative interessate, la stima delle infezioni chirurgiche senza necessità di comunicare le stesse ai comitati di controllo (IB)

CURA DELLE FERITE INFETTE

I principali fattori favorevoli la guarigione sono: buon grado di umidità, temperatura sui 37°, pulizia, buono stato di ossigenazione.
E' preferibile usare antibiotici per via sistemica piuttosto che localmente.
All'interno della ferita infetta è sconsigliato applicare soluzioni disinfettanti - No al mercurocromo e alle garze iodoformiche. Il Povidone-iodio è istiolesivo, l'acqua ossigenata distrugge le cellule in via di riepitelizzazione.
Quotidianamente è necessario effettuare una pulizia della ferita con fisiologica sterile e rinnovo della medicazione tradizionale con tecnica pulita.
I tipi di medicazione più indicati sono quelle idrocolloidali e quelle alginate.

Bibliografia

1. Altmeier WA, Culbertson WR. Surgical infection. In: Moyer CA, Rhoads JE, Allen JG, Harkins HN, eds. *Surgery, principles and practice*. 3rd ed. Philadelphia: JB Lippincott; 1965. p. 51-77.
2. American Association of Nurse Anesthetists. *Infection Control Guide*. Park Ridge (IL): American Association of Nurse Anesthetists; 1993.
3. Anielski R; Barczyński M Postoperative wound infections. II. Risk factors related to surgery *Przegl Lek*, 55(3):109-19 1998
4. Anonymous. Antimicrobial prophylaxis in surgery. *Med Lett Drugs Ther* 1997;39(1012):97-102.
5. Association of Operating Room Nurses. *Standards, Recommended Practices, Guidelines*. Denver: Association of Operating Room Nurses; 1999.
6. Ayliffe GA. Role of the environment of the operating suite in surgical wound infection. *Rev Infect Dis* 1991;13(Suppl 10):S800-4.
7. B'erard F, Gandon J. Postoperative wound infections: the influence of ultraviolet irradiation of the operating room and of various other factors. *Ann Surg* 1964;160(Suppl 1):1-192.
8. Bellchambers J et al - A prospective study of wound infection in coronary artery surgery - *Eur J Cardiothorac Surg* 1999 Jan; 15(1):45-50
9. Bennett SN, McNeil MM, Bland LA, Arduino MJ, Villarino ME, Perrotta DM, et al. Postoperative infections traced to contamination of an intravenous anesthetic, propofol. *N Engl J Med* 1995;333:147-54.
10. Berkelman RL, Martin D, Graham DR, Mowry J, Freisem R, Weber JA, al. Streptococcal wound infection caused by a vaginal carrier. *JAMA* 1982;247:2680-2.

13. Blomstedt GC. Infections in neurosurgery: a randomized comparison between silk and polyglycolic acid. *Acta Neurochir (Wien)* 1985;76:90-3.
14. Bree-Williams FJ, Waterman H - An examinatio of nurses' praticies when performing aseptic technique foe wound dressings - *J Adv Nurs* 1996 Jan; 23(1); 48-54
15. Brennan MF, Pistors PW, Posner M, Quesada O, Shike M. A prospec-tive randomized trial of total parenteral nutrition after major pancreatic resection for malignancy. *Ann Surg* 1994;220:436-41; discussion 441-4.
16. Brown IW Jr, Moor GF, Hummel BW, Marshall WG Jr, Collins JP. Toward further reducing wound infections in cardiac operations. *Ann Thorac Surg* 1996;62(6):1783-9.
17. Bruun JN. Post-operative wound infection. Predisposing factors and the effect of a reduction in the dissemination of staphylococci. *Acta Med Scand Suppl* 1970;514(Suppl):3-89.
18. Cannavo M et al - A comparison of dressings in the managment of surgical abdominal wounds - *J Wound Care* 1998 vi 7 n.2 pg 57-62
19. Centers for Disease Control and Prevention. National Nosocomial Infections Surveillance (NNIS) report, data summary from October 1986-April 1996, issued May 1996. A report from the National Nosocomial Infections Surveillance (NNIS) System. *Am J Infect Control* 1996;24:380-8.
20. Centers for Disease Control and Prevention, National Center for Health Statistics. *Vital and Health Statistics, Detailed Diagnoses and Procedures, National Hospital Discharge Survey, 1994*. Vol 127. Hyattsville, Maryland: DHHS Publication; 1997.
21. Centers for Disease Control. Postsurgical infections associated with nonsterile implantable devices. *MMWR Morb Mortal Wkly Rep* 1992;41(15):263.
22. Classen et al The timing of prophylactic administration of antibiotics and the risks of surgical wound infection - *N Engl j Med* 1992 Jan 30; 326(5):281-6
23. Chan H, Wind S Kerstein MD - Moist wound healing - *Dermatol Nurs* 1996 Jun; 174-6, 204
24. Codina C et al - Perioperative antibiotic prophylaxis in Spanish hospitals: results of a questionnaire survey - *Infect Control Hosp Epidemiol* 1999 Jun; 20 (6): 436-9
25. Condon RE, Schulte WJ, Malangoni MA, Anderson-Teschendorf MJ. Effectiveness of a surgical wound surveillance program. *Arch Surg* 1983;118:303-7.
26. Cruse P. Wound infection surveillance. *Rev Infect Dis* 1981;4(3):734-7.
27. Cruse PJ, Foord R. The epidemiology of wound infection: a 10-year prospective study of 62,939 wounds. *Surg Clin North Am* 1980;60(1): 27-40.
28. Cruse PJ. Surgical wound infection. In: Wonsiewicz MJ, ed. *InfectiousDiseases*. Philadelphia: W.B. Saunders Co; 1992. p. 758-64.
29. Cruse PJ, Foord R. A five-year prospective study of 23,649 surgical wounds. *Arch Surg* 1973;107:206-10.
30. Drinkwater CJ, Neil MJ. Optimal timing of wound drain removal fol-lowing total joint arthroplasty. *J Arthroplasty* 1995;10(2):185-9.
31. Ehrenkranz NJ, Meakins JL. Surgical infections. In: Bennett JV, Brachman PS, eds. *Hospital Infections*. 3rd ed. Boston: Little, Brown and Co; 1992. p. 685-710.
32. Foster L Moore P - The application of a cellulose-based fibre dressing in surgical wounds - *J Wound Care* 1997 Nov; 6(10):469-73
33. Dineen P, Drusin L. Epidemics of postoperative wound infections associated with hair carriers. *Lancet* 1973;2(7839):1157-9.
34. Gil-Egea MJ, Pi-Sunyer MT, Verdaguer A, Sanz F, Sitges-Serra A, Eleizegui LT. Surgical wound infections: prospective study of 4,486 clean wounds. *Infect Control* 1987;8(7):277-80.
35. Gordon SM, Serkey JM, Barr C, Cosgrove D, Potts W. The relationship etween glycosylated hemoglobin (HgA1c) levels and postoperative infections in patients undergoing primary coronary artery bypass surgery *Infect Control Hosp Epidemiol* 1997;

46. Hardin WD, Nichols RL. Handwashing and patient skin preparation. In: Malangoni MA, ed. *Critical Issues in Operating Room Management*. Philadelphia: Lippincott-Raven; 1997. p. 133-49.
47. Heiss MM, Mempel W, Jauch KW, Delanoff C, Mayer G, Mempel M, et al. Beneficial effect of autologous blood transfusion on infectious complications
48. after colorectal cancer surgery. *Lancet* 1993;342:1328-33.
49. Herwaldt LA, Pottinger J, Coffin SA. Nosocomial infections associated with anesthesia. In: Mayhall CG, ed. *Hospital Epidemiology and Infection Control*. Baltimore: Williams & Wilkins; 1996. p. 655-75.
50. Holdsworth J -Treatment of infective and potentially infective complications of vascular bypass grafting using gentamicin with collagen sponge. *Ann R Coll Surg Engl* 1999 May;81(3):166-70
51. Hopf HW; Hunt TK; West JM; Blomquist P; Goodson WH 3rd; Jensen JA; Jonsson K; Paty PB; Rabkin JM; Upton RA; von Smitten K; Whitney JD - Wound tissue oxygen tension predicts the risk of wound infection in surgical patients.- *Arch Surg*, 132(9):997-1004; discussion 1005 1997 Sep
52. Hu SS, Fontaine F, Kelly B, Bradford DS. Nutritional depletion in staged spinal reconstructive surgery. The effect of total parenteral nutrition. *Spine* 1998;23:1401-5.
53. Kaufman Z, Engelberg M, Eliashiv A, Reiss R. Systemic prophylactic antibiotics in elective biliary surgery. *Arch Surg* 1984;119:1002-4.
54. D. Kelly, K. Nomoto, P.A. Sheiner, C. Miller, M. Schwartz, S. Guy, S. Emre and B. Meyers*, Departments of Surgery and Medicine,* The Mount Sinai Medical Center, New York, NY. [High rate and timing of wound infections after OLT indicates need for special wound care precautions in immunosuppressed patients](#)
55. Kerstein MD - The scientific basis of healing - *Adv Wound care* 1997 May-Jun;10 (3): 30-6
56. Kravitz M. Outpatient wound care. *Crit Care Nurs Clin North Am* 1996;8(2):217-33.
57. Kurz A, Sessler D, Lenhardt R. Perioperative normothermia to reduce the incidence of surgical-wound infection and shorten hospitalization *New England Journal of Medicine*. 334:1209-15. May 9, 1996.
58. Larson E. Guideline for use of topical antimicrobial agents. *Am J Infect Control* 1988;16:253-66.
59. Leaper DJ - Risk factors for surgical infection - *J Hosp* 1995 Jun;30 suppl: 127-39
60. Lidwell OM. Clean air at operation and subsequent sepsis in the joint. *Clin Orthop* 1986;211:91-102.
61. Lilienfeld DE, Vlahov D, Tenney JH, McLaughlin JS. Obesity and diabetes as risk factors for postoperative wound infections after cardiac
62. surgery. *Am J Infect Control* 1988;16:3-6.
63. Lineaweaver WC, Hui K, Yim K, Ruyle M, Shuster B, Eggleston J, Grover S The role of the plastic surgeon in the management of surgical infection. *Plast Reconstr Surg* 1999 May;103(6):1553-60
64. Litwack K Practical points on wound healing - *J Post Anesth Nurs* 1995 Feb ; 10(1): 29-32
65. Lowbury EJ, Lilly HA, Ayliffe GA. Preoperative disinfection of surgeons' hands: use of alcoholic solutions and effects of gloves on skin flora. *Br Med J* 1974;4:369-72.
66. Marroni M et al - prospective, randomized, double-blind trial comparing teicoplanin and cefazolin as antibiotic prophylaxis in prosthetic vascular surgery - *Eur J Clin Microbiol Infect Dis* 1999 Mar;18(3): 175-8
67. Mehta G, Prakash B, Karmoker S. Computer assisted analysis of wound infection in neurosurgery. *J Hosp Infect* 1988;11:244-52.
68. Mishriki SF, Law DJ, Jeffery PJ. Factors affecting the incidence of post-operative wound infection. *J Hosp Infect* 1990;16:223-30.
69. Mitchell NJ, Hunt S. Surgical face masks in modern operating rooms—a costly and unnecessary ritual? *J Hosp Infect* 1991;18:239-42.
70. Mitchell DH et al - Surgical wound infection surveillance: the importance of infections that develop after hospital discharge *Aust N Z J Surg* 1999 Feb; 69(2):117-20
71. Moore P Foster L Acute surgical wound care An overview of treatment - *Br J Nurs* 1998 Oct 8-21; - 1999 feb 25 mar
72. Morales C Andrews J Postoperative wound care: nursing assessment and management - *Semin Perioper Nurs* 1993 Oct; 2 (4): 231-7
73. Nagachinta T, Stephens M, Reitz B, Polk BF. Risk factors for surgical-wound infection following cardiac surgery. *J Infect Dis* 1987;156:967-73.
74. Nichols RL, Smith JW, Garcia RY, Waterman RS, Holmes JW. Current practices of preoperative bowel preparation among North American col-orectal

75. surgeons. *Clin Infect Dis* 1997;24:609-19.
76. Nichols RL, Holmes JW. Prophylaxis in bowel surgery. *Curr Clin Top Infect Dis* 1995;15:76-96.
77. Nooyen SM, Overbeek BP, Brutel de la Riviere A, Storm AJ, Langemeyer JM. Prospective randomised comparison of single-dose versus multiple-dose cefuroxime for prophylaxis in coronary artery bypass grafting. *Eur J Clin Microbiol Infect Dis* 1994;13:1033-7.
78. Pearce BA et al - Efficacy of ckean vs sterile surgical prep kits - AORN J - 1997 vl 66 n.3 pg 464-70
79. PerssonM Svenberg T Poppen B - To dress or not to dress surgical wounds? Patients' attitudes to wound care major abdominal operations
80. Petzold T, Feindt PR, Carl UM, Gams E Hyperbaric oxygen therapy in deep sternal wound infection after heart transplantation. *Chest* 1999 May;115(5):1455-8
81. Post S, Betzler M, vonDitfurth B, Schurmann G, Kuppers P, Herfarth C. Risks of intestinal anastomoses in Crohn's disease. *Ann Surg*
82. 1991;213(1):37-42.
83. Poulsen KB; Meyer M - *Infection* registration underestimates the frequency of surgical wound infection - Ugeskr Laeger, 160(4):421-4 1998 Jan 19
84. Richet HM, Craven PC, Brown JM, Lasker BA, Cox CD, McNeil MM, et al. A cluster of *Rhodococcus (Gordona) bronchialis* sternal-wound
85. infections after coronary-artery bypass surgery. *N Engl J Med* 1991;324:104-9.
86. Roding H - Postoperative wound infections and perioperative anibiotic administration - Zentrabl Chir 1991;116(24):1391-8
87. Rotter ML, Larsen SO, Cooke EM, Dankert J, Daschner F, Greco D, et al. A comparison of the effects of preoperative whole-body bathing with detergent alone and with detergent containing chlorhexidine gluconate on the frequency of wound infections after clean surgery. The European Working Party on Control of Hospital Infections. *J Hosp Infect* 1988;11:310-20.
88. Rudnick JR, Beck-Sague CM, Anderson RL, Schable B, Miller JM, Jarvis WR. Gram-negative bacteremia in open-heart-surgery patients traced to probable tap-water contamination of pressure-monitoring equipment. *Infect Control Hosp Epidemiol* 1996;17(5):281-5.
89. Sanderson PJ. Antimicrobial prophylaxis in surgery: microbiological factors. *J Antimicrob Chemother* 1993;31(Suppl B):1-9.
90. Schaffner W, Lefkowitz LB Jr., Goodman JS, Koenig MG. Hospital out-break of infections with group A streptococci traced to an asymptomatic anal carrier. *N Engl J Med* 1969;280:1224-5.
91. Schaberg DR. Resistant gram-positive organisms. *Ann Emerg Med* 1994;24(3):462-4.
92. Schmitt M et al Evaluation of a hydrocolloid dressing J Wound care 1996 oct;5(9): 396-9
93. Seropian R, Reynolds BM. Wound infections after preoperative depila-tory versus razor preparation. *Am J Surg* 1971;121:251-4.
94. Stotts NA et al. - Sterile versus clean technique in postoperative wound care ot patients with open surgical wounds: a pilot study - J Wound Ostomy Continence Nurs 1997 jan;24(1):10-8
95. Tokars JI, Culver DH, Mendelson MH, Sloan EP, Farber BF, Fligner DJ, et al. Skin and mucous membrane contacts with blood during surgical procedures: risk and prevention. *Infect Control Hosp Epidemiol* 1995;16:703-11.
96. U.S. Department of Labor, Occupational Safety and Health Administration. Occupational exposure to bloodborne pathogens; final rule (29 CFR Part 1910.1030). *Federal Register* 1991;56:64004-182.
97. Vamvakas EC, Carven JH, Hibberd PL. Blood transfusion and infection after colorectal cancer surgery. *Transfusion* 1996;36:1000-8.
98. Vamvakas EC, Carven JH. Transfusion of white-cell-containing allo-geneic blood components and postoperative wound infection: effect of confounding factors. *Transfus Med* 1998;8:29-36.
99. Vamvakas EC; Carven JH Transfusion of white-cell containing allogeneic blood components and postoperative wound infection: *Transfus Med*, 8(1):29-36 1998 Mar
100. Vardi A; Barzilay Z; Linder N; Cohen HA; Paret G; Barzilay A - Local application of honey for treatment of neonatal postoperative wound infection.- *Acta Paediatr*, 87(4):429-32 1998 Apr
101. Wikblad K Anderson B - A comparison of three wound dressings in patients undergoing heart surgery - Nurs -Res 1995 vl 44 nr.5 pg 312 -6
102. Zerr KJ, Furnary AP, Grunkemeier GL, Bookin S, Kanhere V, Starr glucose control lowers the risk of wound infection in diabetics after open heart operations. *Ann Thorac Surg* 1997;63(2):356-61.