

## Surgical site infection in general surgery: 5-year analysis and assessment of the National Nosocomial Infection Surveillance (NNIS) index

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**Introduction.** The aim of this study was to describe the rate of surgical site infections (SSI), classified according to the NNIS index and its components, as well as to evaluate this scale and assess the importance of several factors that influence the development of an SSI.

**Patients and methods.** All episodes of SSI were prospectively registered over a 5-year period. All patients (infected or not) were given an NNIS index and an NNIS category. Postoperative hospital stay and bacteria cultured from the surgical site were also analyzed. Chi2 test, Student's t-test and multiple logistic regression were used.

**Results.** There were 6,218 patients and 513 SSI (8.25%). The infection rate was 2.27% for clean surgery, 9.17% for clean-contaminated surgery, 11.40% for contaminated surgery, and 19.14% for dirty surgery; 4% for ASA I, 8.23% for ASA II, 13.54% for ASA III, 19.55% for ASA IV, and 33.33% for ASA V; 6.97% for length of procedure = 75th percentile, and 23.01% for > 75th percentile; 3.95% for NNIS 0, 8.17% for NNIS 1, 22.08% for NNIS

2, and 37.23% for NNIS 3. Among the components of the NNIS index, the length of the surgical procedure had the greatest influence on the rate of SSI (OR = 3.43 versus OR = 2.60 for the grade of contamination and OR = 2.20 for ASA index). The infection rates according to the type of intervention were: 30.9% in hepatobiliopancreatic surgery, 24.3% in small bowel surgery, 16.1% in colorectal surgery, 15.4% in gastroduodenal surgery; 8.5% in other soft tissue interventions, 7.7% in exploratory laparotomies, 6.4% in appendicectomies for appendicitis, 5.0% in cholecystectomy, 5.0% in other interventions of the digestive tract, 3.3% in breast surgery, 1.5% in herniorrhaphies, and 0.7% in endocrine surgery.

**Conclusions.** The NNIS index is a valid instrument for classifying surgical patients according to the risk of developing an SSI. Of the three components, the length of the intervention has the greatest influence on increasing the risk of infection. The NNIS categories also distinguish different levels of risk of infection. (*Cir Esp 2006; 79: 199-201*).

## Modeling fibrillation potentials-a new analytical description for the muscle intracellular action potential

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The single-fiber action potential (SFAP) can be modeled as a convolution of a bioelectrical source (the excitation) and a transfer function, representing the electrical volume conduction. In the Dimitrov-Dimitrova (D-D) convolutional model, the first temporal derivative of the intracellular action potential (IAP) is used as the source. In this model, the ratio between the amplitudes of the second and first phases of the SFAP (which we call the PPR, after peak-to-peak ratio) increases invariably with radial distance. This is not the case of real recorded fibrillation potentials (FPs). Moreover, FPs show a wider

PPR range than that which the D-D model can provide. These discrepancies suggest that the D-D model should be revised. Since the volume conduction parameters seem to have no apparent effects on the PPR, we assume that the origin of this difference lies in the excitation source. This paper presents a new analytical description of the IAP based on that expressed in the D-D model. The new approximation is shown to model FPs with a range of PPRs comparable to that observed in a set of real FPs which we used as our test signals. (*IEEE Trans Biomed Eng 2006; 53: 581-592*).

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## Utility of bolus somatostatin administration in preventing pancreatitis after endoscopic retrograde cholangiopancreatography: a controlled, non-randomized study

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**Introduction.** Somatostatin is one of the most extensively evaluated drugs in the prophylaxis of pancreatitis after endoscopic retrograde cholangiopancreatography (ERCP), but its utility remains controversial.

**Patients and methods.** The aim of this study was to evaluate the role of somatostatin as prophylaxis of ERCP-induced acute pancreatitis. A group of consecutive patients that underwent ERCP in our endoscopy unit was prospectively studied for 8 months. Patients in this group were administered an endovenous bolus of 250 micrograms of somatostatin immediately before introducing the catheter in the papilla of Vater (somatostatin group). This group was compared with another group composed of consecutive patients who had undergone ERCP in the 8 previous months, without somatostatin administration (placebo group). Both groups contained the same number of patients. The following variables were recorded; sex, age, contrast

injection in the duct of Wirsung, endoscopist, therapeutic maneuvers, and the development of post-ERCP pancreatitis.

**Results.** During the 16 months of patient inclusion, we performed 320 ERCP in our unit, of which 248 were included in the study: 142 in the somatostatin group and 142 in the placebo group. Of these patients, 152 (53.5%) were men and 132 (46.5%) were women. The mean age was 70.05 +/- 13.83 years (range: 27-93 years). Acute pancreatitis occurred in 10 patients in the somatostatin group and in 5 in the placebo group; this difference was not statistically significant ( $p > 0.05$ ). No significant differences were found between the two groups in the remaining variables studied.

**Conclusión.** Somatostatin does not seem to be useful in preventing post-ERCP acute pancreatitis. (*Gastroenterol Hepatol 2006; 29: 231-236*).

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## Effect of dietary quercetin and sphingomyelin on intestinal nutrient absorption and animal grown

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Research on cancer and other conditions has shown flavonoids and sphingolipids to be food components capable of exerting chemoprotective action. Nevertheless, little is known about their effects on healthy individuals and their potential usefulness as therapeutic agents. The present study examined the possible action of a dietary flavonoid, quercetin, and a sphingolipid, sphingomyelin, as functional foods in healthy animals. In particular, the effect on animal growth of supplementing a conventional diet with one or other of these substances (0.5 % quercetin and 0.05 % sphingomyelin) was considered. Possible action affecting intestinal physiology was also analysed by measuring the uptake of sugar and dipeptide, mediated

by the Na(+)-dependent sugar transporter SGLT1 and the dipeptide Na(+)/H(+) exchanger PEPT1 respectively, and the activity of related intestinal enzymes such as sucrase, maltase and aminopeptidase N. Both substances seemed to modify small intestinal activity in healthy mice, altering intestinal enzymatic activity and nutrient uptake. These effects observed in the small intestine did not impair normal development of the animals, as no differences in serum biochemical parameters or in organ and body weights were found. The findings should help in elucidating the mechanisms of action of these food components with a view to their possible use in the prevention of certain pathological conditions. (*Br J Nutr 2006; 95: 455-461*).