Graph 3 - Surgical site infection: rate with and without post-discharge surveillance. Hospital Universitário Ciências Médicas: Jan/2017 to Jul/2019: endemic curve.

Disclosures. All Authors: No reported disclosures

892. Meningitis after Ventricular Shunt Operations: Multicenter Study to Identify Etiology, Incidence and Risk Factors
LUCCA G. GIAROLA, Medical Student1; Handerson Dias Duarte de Carvalho, Medical Student1; Braulio Roberto Gonçalves Marinho Couto, n/a;2
Carlos Ernesto Ferreira Starling, n/a;2 Centro Universitário de Belo Horizonte; Belo Horizonte, Minas Gerais, Brazil; Centro Universitário de Belo Horizonte – UniBB, Belo Horizonte, Minas Gerais, Brazil; 1; Lifecenter Hospital, Belo Horizonte, Minas Gerais, Brazil
Session: P-42. HAI: Surgical Site Infections

Background. A Ventriculoperitoneal shunt is the main treatment for communicating hydrocephalus. Surgical site infection associated with the shunt device is the most common complication and an expressive cause of morbidity and mortality of the treatment.

The objective of our study is to answer three questions: a) What is the risk of meningitis after ventricular shunt operations? b) What are the risk factors for meningitis? c) What are the main microorganisms causing meningitis?

Methods. A retrospective cohort study assessed meningitis and risk factors in patients undergoing ventricular shunt operations between 2015/Jul and 2018/Jun from 12 hospitals at Belo Horizonte, Brazil. Data were gathered by standardized methods defined by the National Healthcare Safety Network (NHSN)/CDC procedure-associated protocols for routine SSI surveillance. Sample size = 926.

26 variables were evaluated by univariate and multivariate analysis (logistic regression).

Results. 71 patients were diagnosed with meningitis which represent a risk of 7.7% (CI 95% 6.1%, 9.6%). From the 26 variables, three were acknowledged as risk factors: age < two years old (OR = 3.20; p < 0.001), postoperative hospital length of stay > four days (OR = 2.02; p = 0.007) and more than one surgical procedure (OR = 3.23; p = 0.043). Patients two or more years old, who had surgery four days after hospital admission, had increased risk of meningitis from 4% to 6% (p = 0.140). If a patient < two years had surgery four days post hospital admission, the risk is increased from 9% to 18% (p = 0.026). 71 meningitis = 45 (63%) the etiologic agent identified: Staphylococcus aureus (33%), Staphylococcus epidermidis (22%), Acinetobacter sp (7%), Enterococcus sp (7%), Pseudomonas sp (7%), and other (18%). Hospital length of stay in non-infected patients (days): mean = 21 (sd = 28), median = 10 days; hospital stay in infected patients: mean = 34 (sd = 37), median = 27 (p = 0.025). Mortality rate in patients without infection was 10% while hospital death of infected patients was 13% (p = 0.544).

Conclusion. Two intrinsic risk factors for meningitis post ventricular shunt, age under two years old and multiple surgeries, and one extrinsic risk factor, preoperative length of hospital stay, were identified. Incidence of meningitis post VP shunt decreases with urgent surgical treatment.

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893. Occurrence’s Prediction of Surgical Site Infection in Limb Amputation Surgery
Flávio Henrique Batista de Souza, n/a;1; Braulio Roberto Goncalves Marinho Co uito, n/a;1 Felipe Leandro Andrade da Conceição, n/a;1 Gabriel Henrique Silves tre da Silva, n/a;1 Igor Goncalves Dias, n/a;1 Rafael Vieira Magno Rigueira, n/a;1 Gustavo Maciel Pimenta, n/a;1 Maurilio R. Martins, n/a;1 Julio César O. Mendes, n/a;1 Guilherme Brandioni Januario, n/a;1 Rayane Ihamures Oliveira, n/a;1 Laura Ferraz de Vasconcelos, n/a;2 Lais L. de Araújo, n/a;2
Ana Clara Resende Rodrigues, n/a;1; Camila Morais Oliveira E Silva, n/a;1; Eduarda Viana De Souza, n/a;1 Julia Faria Melo, n/a;1 Maria Claudia Assunção De Sá, n/a;1 Walquilia Magalhães Silva, n/a;2 Beatrix Isabel de Souza Alves, n/a;2 Débora Mendes Resende, n/a;2 Guillerme Prata Borges A., n/a;2 Gustavo Ryan Martins Santos, n/a;2 João Paula Silva Santos Xavier, n/a;2 Lucas de Paula Lacerda, n/a;2 Maria Julia Santos e Silva, n/a;2 Centro Universitário de Belo Horizonte, Belo Horizonte, Minas Gerais, Brazil; 1; Centro Universitário de Belo Horizonte UNIBH, Belo Horizonte, Minas Gerais, Brazil
Session: P-42. HAI: Surgical Site Infections

Background. A research was conducted between July 2016 and June 2018 in five hospitals in Belo Horizonte, a city of 3,000,000 inhabitants, focused on surgical site infection (SSI) in patients undergoing limb amputation surgery procedure. The main objective is to statistically evaluate such incidences and enable a study of the prediction power of SSI through MLPs (Multilayer Perceptron), a pattern recognition algorithm.

Methods. Data were collected on SSI by the Hospital Infection Control Committees (CCIH) of the hospitals involved. The information was forwarded to the NOIS (Nosocomial Infection Study) Project. After data collection, three procedures were performed: a treatment of the database collected for the use of intact samples; a statistical analysis on the profile of the hospitals collected; and an assessment of the predictive power of five types of MLP (Backpropagation Standard, Momentum, Resilient Propagation, Weight Decay, and Quick Propagation) for SSI prediction. MLPs were tested with 3, 5, 7, and 10 hidden layer neurons and a database split for the resampling process (65% or 75% for testing, 35% or 25% for validation). They were compared by measuring AUC (Area Under the Curve - ranging from 0 to 1) presented for each of the configurations.

Results. From 969 data, only 507 were intact for analysis. Statistically: in 12.45% there was an incidence of global infection and that in 10.67% of the cases were SSI (among which 96.4% had to be hospitalized for more than 10 days); patients were hospital- ized on average 21 days (from 0 to 141 days); the average duration is 78 minutes (maximum 360 minutes); 53 deaths (a 16.98% death rate in case of SSI). A maximum prediction power of 0.688 was found.

Conclusion. Despite the loss rate of almost 40% of the database samples due to the presence of noise, it was obtained a relevant sampling to evaluate the profile the hospitals. For the predictive process, although some configurations reached 0.688, which makes promising the use of the automated SSI monitoring framework for patients undergoing limb amputation surgery. To optimize data collection and enable other hospitals to use the SSI prediction tool (available in www.sacwh.com), two mobile application were developed: one for monitoring the patient in the hospital and the other for post-hospital discharge monitoring.

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894. Patient and Surgery Characteristics on Wound Complication and Surgical Site Infection in Sarcoma Patients Undergoing Hemipelvectomy
Ju Hee Katzman, MD1; Steven Sun, n/a;2 David Joyce, MD1; John Greene, MD1; 1University of South Florida, Tampa, Florida; Moffitt Cancer Center, Tampa, Florida
Session: P-42. HAI: Surgical Site Infections

Background. Hemipelvectomy is associated with a significant risk of wound complications, including infections, bleeding and injuries to nearby neurovascular structures as well as the gastrointestinal and genitourinary tract. This study aimed to determine the patient characteristics and approach to treatment that could affect the occurrence of surgical site infection or wound complications in sarcoma patients undergone hemipelvectomy.

Methods. We conducted a retrospective analysis of 33 adult patients who underwent hemipelvectomy at Moffitt Cancer Center, Tampa, FL, from 2008 to 2016. We used Chi-square (Exact Fisher) test to investigate the association between wound complication and categorical variables. We used a T-test to evaluate the difference in numerical variables for outcomes.

Results. Out of 33 patients, 12 (36.4%) patients experienced wound complications after hemipelvectomy (Table 1). The average age of patients with wound complications was 63.3 ± 57.1 years old, significantly higher than that of patients without wound complications (p=0.004). Without adjustment, the use of computer navigation had a lower wound complication rate (p=0.027). Patients with wound complications had longer hospital length of stay (14.8 ± 7.0 days, p=0.016). Among patients with surgical site infection (Table 2), there were no patients' characteristics or surgical characteristics associated with this outcome. Five (15%) patients developed surgical site infection and they had longer hospital stay (19.4 ± 8.1 days, p=0.001). The organisms identified from wound cultures include methicillin-resistant Staphylococcus aureus, viridans Streptococcus, Peptostreptococcus asaccharolyticus, Enterobacter cloacae, Pseudomonas aeruginosa, Candida albicans. The organisms in late infections (more than 6 months since surgery), included above organisms plus Stenotrophomonas maltophilia and Acrobacter xylosidans.