PIN2

ESTIMATING THE ADDITIVE EFFECTS OF LENGTH OF STAY ON CONTRACTING CLOSTRIDIUM DIFFICILE INFECTION

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OBJECTIVES: The probability of contracting a hospital acquired infection increases the longer an individual is hospitalised. The purpose of this analysis is to quantify the additional probability of contracting *Clostridium Difficile* Infection (CDI) for each additional day spent in the hospital. **METHODS:** Using the English Hospital Episode Statistics (HES) database, the number of inpatient days before diagnosis of hospital-acquired CDI and the total number of inpatient days for patients that do not acquire CDI are calculated. This time-to-event variable, along with a set of covariates, is used in a binary logistic regression to predict the added probability of contracting CDI for each additional day in the hospital. Patients in this analysis were over 50 years old, had a length of stay (LoS) less than 50 days, and had a co-morbidity of chronic obstructive pulmonary disease (COPD), heart failure, diabetes, or kidney disease. **RESULTS:** The average LoS for all patients, patients with CDI, and patients without CDI, was 5.48 days (σ^2=8.46), 26.24 days (σ^2=12.86), and 5.38 days (σ^2=8.46), respectively. The average LoS before acquiring CDI was 6.27 days (σ^2=12.81). For each additional day spent in the hospital, a patient has 4.40% greater chance of contracting the disease (OR=1.044; s.e.=0.001; p<0.01). Increased age (OR=1.134; s.e.=0.019; P<0.01) and being female (OR=1.28; s.e.=0.034; p<0.01) were also predictors of CDI diagnosis. **CONCLUSIONS:** This model quantifies the increased likelihood of hospital acquired infections associated with longer duration inpatient admissions. Such infections are associated with much more severe health outcomes and are a significant burden on hospital resources.

PIN3

BURDEN OF CYTOMEGALOVIRUS DISEASE IN IMMUNOSUPPRESSED PERSONS FOLLOWING TRANSPLANTATION IN FRANCE

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OBJECTIVES: Following solid organ transplantation (SOT) or hematopoietic stem cell transplantation (HSCT), patients are at risk of cytomegalovirus (CMV) disease. The impact of CMV disease on mortality and hospitalisation costs following transplantation and on the probability of transplant rejection following SOT was estimated. **METHODS:** We conducted a retrospective cohort study of a database of hospitalisations in France (PMSI). Available data included demographics, hospital characteristics, diagnoses, health care procedures, length of stay, discharge status and costs. Logistic regression was used to estimate the impact of CMV disease during initial hospitalisation on the probability of graft rejection and mortality during initial stay or following readmission. The impact of CMV disease on costs was estimated using generalised linear modelling. All estimates were adjusted on age, gender and transplant type. A first analysis based on hospitalisation records from 2007 was performed; additional analyses accounting for patient censoring, with the data from 2008 to 2011, are planned. **RESULTS:** Among 4,078 SOT recipients and 3,530 HSCT recipients, CMV disease was reported during initial stay in 65 (1.59%) and 67 (1.90%) patients respectively. Case fatality rates were 5.37% and 3.23% in the SOT and HSCT recipients. CMV disease was associated with an increased mortality following HSCT (odds ratio = 3.614, p=0.0018), but not following SOT (OR=1.087, p=0.83). Graft rejection was recorded for 11.53% of SOT recipients and the odds ratio of rejection associated with CMV was 2.71 (p=0.0007). Average hospitalisation costs were €45,700 for HSCT and €32,200 for SOT. CMV disease was associated with increases in costs by 90.37% (p<0.0001) for HSCT and 86.14% (p<0.0001) for SOT. **CONCLUSIONS:** CMV disease is associated with substantial increases in probability of graft rejection, mortality and hospitalisation costs in French transplant recipients. The costs and serious adverse events of antiviral therapy for CMV prophylaxis or pre-emption add to this burden.

PIN4

MIXED-TREATMENT COMPARISON OF THE EFFICACY AND SAFETY OF ANTIRETROVIRAL DRUGS INDICATED FOR TREATMENT-EXPERIENCED HIV PATIENTS

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OBJECTIVES: No cure for HIV currently exists, however antiretroviral (ARV) drugs can control disease progression. The objective of this study was to carry out a mixed-treatment comparison (MTC) of randomized controlled trials (RCTs) to assess the relative efficacy and safety of ARV drugs used in treatment-experienced (TE) patients. MTCs synthesise available evidence by combining direct and indirect comparisons. **METHODS:** All phase II and III RCTs published in the past five years, assessing the efficacy of etravirine (ETR), maraviroc (MVC) and raltegravir (RAL) in combination with optimized background therapy (OBT) compared to OBT alone in TE HIV patients were identified. Data on patient characteristics, CD4 cell count changes, virological suppression (percentage of HIV RNA <50 copies/mL and <400 copies), common adverse events (diarrhoea, nausea), discontinuations and deaths were extracted. A Bayesian fixed-effect mixed-treatment network analysis was performed on efficacy and safety outcomes at 48 and 96 weeks. **RESULTS:** Twenty-two studies were identified; six were included in the MTC network based on data availability (i.e. BENCHMRK 1 and 2, DUET 1 and 2 and MOTIVATE 1 and 2). All treatments showed increased efficacy compared to OBT. MVC twice daily was associated with an increased virological suppression (mean odds ratio = 1.66 for <400 copies and 1.88 for < 50 copies) and larger CD4 count increase (mean change of 40 cells/mL) compared to ETR at 48 weeks. MVC's superior efficacy to ETR was maintained at week 96. MVC was no different to RAL at week 48 but superior to RAL at 96 weeks for both efficacy outcomes. For safety outcomes, no differences between treatments were found. **CONCLUSIONS:** In the absence of head-to-head trials comparing active drugs, this study provides information on the relative efficacy of each regimen. It confirms the significant clinical value of MVC compared to ETR and RAL in treatment-experienced patients.

PIN5

EFFICACY OF CEFTAROLINE FOSAMIL AND OTHER INTRAVENOUS ANTIBIOTICS IN THE TREATMENT OF COMMUNITY-ACQUIRED PNEUMONIA (CAP): A NETWORK META-ANALYSIS (NMA)

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OBJECTIVES: Ceftaroline fosamil, the prodrug of the active metabolite ceftaroline, is a broad-spectrum intravenous cephalosporin with bactericidal activity against common pathogens causing CAP. The objective was to evaluate the efficacy of ceftaroline fosamil compared with other antibiotics recommended for initial empiric treatment of adults admitted to hospital with moderately severe CAP. **METHODS:** MEDLINE, Medline-In-Process, EMBASE and the Cochrane Controlled Trials Registry were searched to identify published trials in which ceftaroline fosamil, ampicillin/sulbactam, ceftriaxone (1g or 2g q24h), cefuroxime, cefotaxime, co-amoxiclav, ertapenem, levofloxacin and moxifloxacin were used to treat hospitalised patients with CAP. Primary outcomes were clinical success at test-of-cure visit in the modified intention-to-treat (MITT) and clinically evaluable (CE) populations using a NMA with uninformative priors. Clinical success for each antibiotic was reported with 95% credible intervals ($CrI_{95\%}$). A fixed effects model was used. **RESULTS:** Twelve studies (24 treatment arms) with a total of 4,647 patients with CAP were included in the analysis. Five studies involving 2,888 patients were included in the MITT analysis and 9 studies with 3,182 patients in the CE analysis. The pooled clinical success rates (CrI95%) in the MITT population for each antibiotic were: ceftaroline fosamil 75.5% (71.3% to 79.4%), ceftriaxone 68.2% (65.6% to 70.6%), levofloxacin 74.3% (67.3% to 80.4%), and moxifloxacin 73.8% (67.1% to 79.7%). Clinical success rates (CrI95%) in the CE population were ceftaroline fosamil 85.9% (81.4% to 89.6%), ceftriaxone 79.7% (77.3% to 82.0%), co-amoxiclav 64.6% (46.9% to 78.4%), ertapenem 79.8% (70.3% to 87.0%), levofloxacin 85.5% (77.2% to 91.2%), and moxifloxacin 81.7% (75.2% to 86.9%). **CONCLUSIONS:** The results suggest that ceftaroline fosamil may be at least as effective as other antibiotics used in the initial empiric treatment of adults admitted to hospital with CAP. This analysis is limited by the small number of studies that were found, making controlling for heterogeneity challenging.

PIN6

SYSTEMATIC REVIEW OF NON-INTERFERON BASED REGIMENS FOR CHRONIC HEPATITIS C TREATMENT

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OBJECTIVES: Chronic Hepatitis C virus (HCV) infection is one of the silent global epidemics with significant unmet need and disease burden. One of the major limitations of current treatments is the need for 12 or 6 months of Interferon based therapy, which has tolerability and toxicity issues for many patients. During last 2-3 years several new agents have been tested in clinic, which have shown promising results as non-interferon based therapy. Goal of this study was to review the clinical efficacy and safety profile of non-interferon based therapies for HCV treatment. **METHODS:** We searched the MEDLINE, and abstracts from AASLD and EASL until May 2012. Studies were selected for clinical trials on direct acting agents for HCV. Primary endpoints reviewed were Sustained Viral Response (SVR). Toxicity was evaluated as secondary endpoint. Aggregated data were further analyzed to understand comparative safety and efficacy. **RESULTS:** Until May 2012, results of five eligible HCV clinical trials for interferon free regimens were available. Overall, treatment with combination of protease and polymerase inhibitor showed dramatic viral load reduction after 2 weeks of treatment. The combination of PSI-7977 and PSI-938 showed 93% viral clearance after 14 days (n=16). The combination of RG7227 and RG7128 demonstrated 5.1 log reduction in viral load in treatment naive, and 4.9 log reduction in null responder patients after 14 days of treatment. The combination of BMS-790052 and BMS 650032 showed 36.3% 24 week SVR in null responder patients. One study evaluating VX-222 and Telaprevir combination was discontinued due to viral breakthrough. Several studies are currently on-going whose data would be available in 2012-2013. **CONCLUSIONS:** Non-interferon based therapies have shown impressive viral load reduction in short term studies. However, more data for SVR, viral breakthrough and resistance is needed to confirm their safe use in HCV infected population.

PIN7

EFFICACY OF CEFTAROLINE FOSAMIL AND OTHER INTRAVENOUS ANTIBIOTICS IN THE TREATMENT OF COMPLICATED SKIN AND SOFT TISSUE INFECTIONS (CSSTI): A NETWORK META-ANALYSIS (NMA)

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OBJECTIVES: Ceftaroline fosamil, the prodrug of the active metabolite ceftaroline, is a novel intravenous cephalosporin with in vitro bactericidal activity against resistant Gram-positive pathogens, including methicillin-resistant *Staphylococcus*