



Late Abstract Submissions:

P45

Quantity of ethanol absorption after excessive hand disinfection using three commercially available hand rubs is minimal and below toxic levels for humans

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Background: To assess if ethanol absorption occurs during hygienic and surgical hand disinfection using three different alcohol-based hand rubs, and if so, to quantify whether resorption would yield minimal or below toxic levels in humans.

Methods: Twelve volunteers applied three hand rubs containing 95% (hand rub A), 85% (hand rub B) and 55% ethanol (hand rub C; all w/w). For hygienic hand disinfection, 4 mL were applied 20 times for 30 s, with 1 minute break between applications. For surgical hand disinfection, 20 mL of each hand rub was applied to hands and arms up to the level of the elbow 10 times for a duration of 3 minutes, with a break of 5 minutes between applications. Blood concentrations of ethanol and acetaldehyde were determined immediately prior and up to 90 minutes after application using head space gas chromatography.

Results: The median of absorbed ethanol after hygienic hand disinfection was 1365 mg (A), 630 mg (B), and 358 mg (C). The proportion of absorbed ethanol was 2.3% (A), 1.1% (B), and 0.9% (C). After surgical hand disinfection, the median of absorbed ethanol was 1067 mg (A), 1542 mg (B), and 477 mg (C). The proportion of absorbed ethanol was 0.7% (A), 1.1% (B), and 0.5% (C). The highest median acetaldehyde concentration after 20 hygienic hand disinfections was 0.57 mg/L (hand rub C, after 30 min), after 10 surgical hand disinfections 3.99 mg/L (hand rub A, after 20 min).

Conclusion: The overall dermal and pulmonary absorption of ethanol was safely below toxic levels in humans and allows the conclusion that the use of the evaluated ethanol-based hand rubs is safe.

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The in-vitro antibacterial activity of *Lucilia sericata* maggot secretions

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Background: Maggots of the green blowfly, *Lucilia sericata*, are used again as an alternative to surgical debridement of chronic wounds. Previously, it has been observed that the secretions of maggots possess antibacterial properties. Two specific peptides are responsible for the antibacterial activity - one peptide with a molecular weight of 2–10 kDa, and the other with a molecular weight of less than 1 kDa. These antibacterial properties could be used as an alternative to long-term anti-infective therapy for the treatment or prevention of infection in chronic wounds. The aim of our work was to quantify the bactericidal activity of secretion of maggots of the species *Lucilia sericata* (Diptera: Calliphoridae). In addition, their ability of ingesting bacteria was also evaluated.

Methods: An in-vitro test model based on the modified European phase 1 quantitative suspension test (EN 1040) for assessment of antiseptic compounds was developed, using a co-culture of maggots and bacteria (*Micrococcus luteus*, *Escherichia coli*, Methicillin-sensitive and Methicillin-resistant *Staphylococcus aureus*) in tryptic soy broth. The numbers of bacterial colonies with and without maggot exposure were compared after 24, 48, and 72 h of exposure. In addition, maggot's ability of ingesting MSSA and MRSA was also evaluated.

Results: After 24, 48 and 72 h of exposure, the mean RFs (\pm SD) for *M. luteus* were 6.7 ± 0.9 , 7.3 ± 1.2 and 6.1 ± 1.5 , respectively. For MSSA 7.5 ± 2.2 , 4.8 ± 3.9 and 4.6 ± 5.4 , respectively, and for *E. coli* 8.7 ± 1.4 , 3.8 ± 4.5 and 4.51 ± 3.9 , respectively. The mean \log_{10} reduction factor (RF) for bacterial elimination was > 4 at all examined times for all tested bacteria.

48 hours after contact with MSSA or MRSA, 1 μ L of aspirate obtained from maggots contained a mean of 1.1 ± 0.3 CFU/ μ L MSSA or 0.75 ± 0.1 CFU/ μ L MRSA, respectively. These maggots, however, continued excreting bacteria after the injury caused by the needle. Aspirates of pupating maggots contained a mean of 60 ± 5 CFU MSSA/ μ L.

Conclusion: Maggot secretion fulfils the required definitions of an antiseptic compound. In addition, maggots eliminate viable bacteria by ingestion. These maggots, however, can excrete bacteria again. For reasons of Infection Control, maggots must be used on single patients only and shall be disposed after use as medical waste.

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Feasibility and clinical applicability of polihexanide for prevention and treatment of second degree burn wound infections

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Background: Infection is a major complication in burn wounds since burned and necrotic tissue is susceptible to contamination by micro-organisms. Management of infection in burn wounds involves amongst others surgical debridement of dead tissue, maximisation of the immune response, provision of adequate nutrition, and the use of topical and systemic antimicrobial agents. While some topically used antimicrobial agents can kill cells such as bacteria, they can equally interfere with cell proliferation during wound healing (i.e. immature and non-adherent keratinocytes), followed by delayed wound closure and ultimately increasing risk of delayed burn infection. Therefore, there are many potent antimicrobial agents which cannot be used long-term on wounds because of their high cytotoxicity, and a balance must be achieved between antimicrobial efficacy and cytotoxic effect. Based on our previous in-vitro studies of tissue compatibility of polihexanide and clinical experiences with this local anti-infective agent polihexanide might be a well suitable antiseptic for chronic wounds. The aim of this study was to investigate the applicability and effectiveness of polihexanide as an alternative to other local antiseptics in the prevention and treatment of secondary degree burn wound infections.

Methods: In 4 patients with poorly healing decubitus ulcers the mesh grafts were each divided into 3 areas which were pre-treated with either undiluted povidone-iodine solution, 1% silver nitrate solution or 0.04 % polihexanide solution. After 7 days of application the wound areas were compared clinically and histologically. Thereafter 14 patients (average extent of burns 28 % TBSA) were treated in the same way.

Results: Clinically and histologically the mesh grafts treated with polihexanide showed by far the best re-epithelisation compared with the deep tissue necrosis and marked fibrin discharge observed for application of povidone-iodine and silver nitrate. The second degree burn wounds treated with polihexanide epithelised without any further débridement after an average of 10 days with a remarkable freedom from pain. Compared with the silver nitrate treatment, no fibrin film was observed on the wound.

Conclusion: Polihexanide proved clinically and histologically superior to povidone-iodine and silver nitrate. For the treatment of second degree burns which cannot primarily be covered by plastic surgery, polihexanide is suitable because in addition to its antiseptic efficacy it does not inhibit the re-epithelisation process.



ADDENDUM / ERRATUM



CHANGE OF SPEAKERS:

Wednesday, December 3rd, 2008

18.00 – 19.30 hrs.

OPENING CEREMONY

Welcoming Address

A.Melico-Silvestre
(Coimbra, Portugal)

Thursday, December 4th, 2008

11.00 – 12.30 hrs.

IMMINENT CLINICAL PROBLEMS

008

Aspergillosis and Other Moulds in Intensive Care Unit (20 Min. + 10 Min. Disc.)

E. Presterl

Vienna, Austria

CHANGE OF CHAIRPERSONS:

Friday, December 5th, 2008

11.00 – 12.30 hrs.

VIRAL UPDATE

Chair: A. Meliço-Silvestre (Coimbra, Portugal)
M. Peck-Radosavljevic (Vienna, Austria)

Friday, December 5th, 2008

12.30 – 14.00 hrs.

PFIZER SYMPOSIUM

Chair: H. Burgmann (Vienna, Austria)
O. Janata (Vienna, Austria)

Saturday, December 6th, 2008

11.00 – 12.30 hrs.

NEW TRENDS IN VACCINES

Chair: E. Presterl (Vienna, Austria)
R. Reinert (Vienna, Austria)

CANCELLED PRESENTATIONS:

Friday, December 5th, 2008

11.00 – 12.30 hrs.

VIRAL UPDATE

021 cancelled

AUTHORS INDEX / ABSTRACTS:

K

Kastanakis S.

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Bacteremia with Pasteurella Multocida in an Elderly Patient

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Introduction: Pasteurella multocida(P.M.) is a Gram-negative coccobacillus found in 70-90% of oral cavities of cats, and as well, is isolated from the digestive systems of dogs, rats, rabbits, monkeys, and other animals. However, this organism can cause serious soft tissue infection. Systematic disease is rare. P. multocida often acts as an opportunistic pathogen in the very young or elderly, or in patients with liver dysfunction, causing bacteremia, septic arthritis in damaged joints, osteomyelitis, meningitis, pneumonia and pulmonary colonization.

Objective: To point out the role of P.M. as etiologic agent provoking infections to pet owners. Patients and methods: A 94-year-old woman was admitted for high fever up to 40C with rigors, weakness and subcrepitations bilateral in lower lung fields in the auscultation. The laboratory tests showed elevated white blood cells, anaemia, elevated liver enzymes, elevated acute phase inflammation index and normal liver ultrasound image. The patient gradually ameliorated her clinical and laboratory condition(under amoxicilline-clavulanic acid) but the kind of the infection was not determined yet.

Results: The blood culture result showed bacteremia with gram (-) pathogen Pasteurella multocida sensitive to ampicilline and doxycilline. It was also revealed from patient's history that the old lady had domestic animals(cats). Animal scratches or bites, or local wound infections were not found. The fever went down after the patient receiving the proper antibiotic therapy and returned home in a very good condition.

Conclusions: Infections with P.M. should be taken into account in every Patient pet-owner, even though there is no apparent soft tissue infection.

Two Cases Of Visceral Leishmaniasis With Different Clinical Picture

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Introduction

Each year 500,000 new cases of visceral leishmaniasis (VL) are reported worldwide with over 50,000 deaths and, although the infection is endemic in 60 countries, over 90% of cases take place in Sudan, India, Nepal, Bangladesh, Brazil and Ethiopia (1). In South Europe VL is caused by *L.donovani infantum*, transmission is mainly zoonotic, dogs are the main pool, subclinical:clinical infection ratio is up to 50:1 and immunosuppression, mainly HIV-coinfection, accounts for the increase of cases in the adults (2,3). Bone marrow biopsy is the gold standard for the diagnosis and its sensitivity depends on the parasitic burden and the clinical suspicion. Atypical clinical presentations are thought to be less common in the immunocompetent.

Here we report two cases of VL with different clinical picture in immunocompetent adults from the same rural region in Crete.

Case presentation

1. Male 58 years old, HIV(-) and immunocompetent, presented with fever and night sweats that had started 10 days ago. He reported contact with poultry, rabbits and dogs. Physical examination revealed massive splenomegaly and it was unremarkable for any other findings including palpable lymph nodes. Blood tests revealed pancytopenia, high ESR and polyclonal hypergammaglobulinemia (*table*). The smear of peripheral blood showed toxic granulations. CT of chest and abdomen was remarkable only for hepatomegaly and massive enlargement of the spleen (22cm). Bone marrow examination was performed on the 6th day and revealed a high load of leishmanial amastigote bodies.

2. Female 47 years old, HIV(-) and immunocompetent, presented with low-grade fever and night sweats of one month's duration. The last 10 days she was on ciprofloxacin-doxycyclin. She reported ingestion of untreated dairy products. Physical examination was unremarkable and blood tests revealed pancytopenia, high ESR and polyclonal hypergammaglobulinemia (*table*). Blood smear showed toxic granulations. CT of chest and abdomen was remarkable only for mild enlargement of liver and spleen (14cm). Bone marrow was cellular and cultures for *Brucella* and *M. tuberculosis* were taken. A regimen of doxycyclin-rifampicin was given for 26 days with relapsing febrile attacks. During this time all blood cultures were negative and the echocardiogram as well as the endoscopic examination of the gut were normal. A second bone marrow biopsy was performed after one month and disclosed leishmanial amastigote bodies. Reexamination of the first specimen revealed few parasites (*image*). The IFA anti-*L.donovani* titer was 3200. A review of the patient's personal history revealed contact with dog.

Both patients received liposomal amphotericin B with good clinical and hematological response.

Discussion

Bone marrow biopsy has in general a sensitivity of 60-85% (4). In a series of HIV-negative patients it reached 97% (5). The results are influenced by the parasitic load and the clinical suspicion. In our 2nd patient the spleen was only mildly enlarged (14cm) and remained so during the whole period of her infection. The first marrow examination failed to demonstrate the scant parasites, which prolonged the time to diagnosis. Taking into account the serologic results (*table*) and the unresponsiveness of the patient to the applied antibiotic regimen the differential diagnosis progressively included culture-negative infective endocarditis, the rare bone marrow - isolated tuberculosis (6) and rare cases of lymphomas that present without nodal or extranodal masses, such as hepatosplenic T-cell lymphoma (7). The presence of toxic granulations and the absence of an elevated LDH made the possibility of a lymphoproliferative disorder even lower and pointed toward a systemic infection that would explain the clinical picture and the combination of pancytopenia and polyclonal gammopathy.

Atypical presentations such as the the absence of fever and organomegaly or the involvement of "unusual" sites eg. lungs, larynx, peritoneum, kidneys and gastrointestinal tract, are traditionally thought to be more commonly encountered in the immunocompromised, especially HIV(+) patients (8). However, such cases are also encountered sporadically in the immunocompetent (9-11). In a large series of HIV(-) and HIV(+) patients the only statistically significant difference in the clinical picture between the two groups was the absence of splenomegaly in the latter (12). In the other hand, the infection itself may be associated with marrow dysplastic changes (13), or it may present as cryoglobulinemic purpura (14) and resemble connective tissue disease (15).

In any case, it is important to keep in mind the range of the various clinical settings in which VL may be the final diagnosis. Our 2nd patient was considered not a typical case due to the only slight visceral enlargement. The latter was apparently the result of the low parasitic burden.