Reviewer's report

Title: Retrospective study of Necrotizing Fasciitis and Characterization of Its Associated Oxacillin-Resistant Staphylococcus aureus

Version: 1 Date: 29 May 2011

Reviewer: Ahmet SOYSAL

Reviewer's report:

Dear Editors please find my review related with submitted article antitled as “Retrospective study of Necrotizing Fasciitis and Characterization of Its associated oxacillin-resistant Staphylococcus aureus”

Necrotizing fasciitis is a deep seated infection of the subcutaneous tissue that results in progressive destruction of fascia and fat, but may spare the skin. Two clinical types exist; type I necrotizing fasciitis is a mixed infection caused by aerobic and anaerobic bacteria and occurs most commonly after surgical procedures and in patients with diabetes and peripheral vascular disease whereas type II necrotizing fasciitis refers to a monomicrobial infection caused by group A streptococcus (GAS, Streptococcus pyogenes). During the last decade NF due to MRSA has been increasingly described both in community and hospital settings. In this study investigators reported 49 NF cases due to MRSA and 41 NF cases MSSA.

As a broader review aspect my opinion related with this article by general features of article as follows:

1. Authors did not well define the aim of this study, their purpose and organization of whole article was not arrenged well.

2. The methods section was not written properly, disign of study, study population, etc not well described.

3. The data that authors have obtained were very important but they could not present this data in well designed-logical manner.

4. As a whole, submitted article need a many changes including in background, methods, results, and discussion sections.

5. Discussion and conclusion section should include other reports related with MRSA-NF case series (NEJM 2005;352:1445-53) and need more discussion points including epidemiology of MRSA-NF in Taiwan.

6. My final opinion is after changes this article must be re-reviewed for publication.

Major Concerns

Article is not well written, in some points its difficult to understand, must be re-evaluated for its English.
Title:

Its better to change title may be as” Necrotizing fasciitis caused by community-associated and hospital associated methicillin-resistant Staphylococcus aureus in Taiwan”

Abstract

Authors must decide to use either oxacillin-resistant SA or MRSA and should use only one of them in a whole article body. (They used in some part of article ORSA but in other parts MRSA)

Abstract methods; instead of pulsotypes PFGE patterns should be used

Abstract conclusion is not clear and not related with article purpose

Background

*Authors should put a sentence related with how common MRSA infection in community in Taiwan. Instead of “Community-acquired ORSA (CA-ORSA) isolates are common pathogen for hemorrhagic necrotizing pneumonia and skin and soft tissue infections (SSTIs), and more virulent than hospital-acquired ORSA (HA-ORSA)”

**Following section should be re-written to be more clear “Virulence factors for toxemic syndrome, staphylococcal scalded-skin syndrome (SSSS), and NF include toxic shock syndrome toxin 1 (TSST-1, a super-antigen), exfoliatin A (ETA), exfoliatin B (ETB), and PVL [18-22]. However, these factors function differently in pathogenicity. TSST-1 can cause in part a desquamative skin rash, fever, inability to maintain homeostasis, and multiple organ failure, staphylococcal toxic shock syndrome (STSS) [23-24]; a pore-forming exotoxin, PVL, together with #-hemolysin (Hlg) can damage erythrocytes, polymorphonuclear (PMN) cells and macrophages [22]. The ETA and ETB are associated with localized bullous impetigo, generalized SSSS (Ritter’s disease), and a spectrum of blistering skin diseases [25-26]. Furthermore, CA-ORSA isolates with the PVL genes typically cause SSTIs and NF [4,27-28].” Its beter to give MRSA virulence factors and its association with pathogenicity in a simple manner not confusing manner above.

****“In this report, we did retrospective study of 247 NF cases during a 4-year period. Further, antimicrobialsusceptibility, SCCmec types, PFGE patterns, virulence factors, and MLST types of ORSA isolates associated with NF were characterized.” may be written as following

In this study, we retrospectively evaluated 247 NF cases during the 2004-2008 period and invastigated antimicrobial susceptibility, SCC mec types, PFGE patterns, virulence factors, and MLST types of ORSA isolates associated with NF.

Methods

*Retrospective study heading shoul be changed as study population
For each patient, age and gender, infection site, and comorbid underlying chronic conditions such as diabetes mellitus, hypertension, chronic liver disease, coronary artery disease, chronic renal insufficiency, chronic obstructive pulmonary disease, and malignancy were analyzed.

Additionally, infectious pathogens, empiric antibiotics, number of operative debridement and reconstruction, need for amputation, duration of hospitalization, and in-hospital mortality rate were also evaluated.

Antimicrobial susceptibility testing

Should be written as “Antibiotic susceptibility testing was performed for SA isolates with respect to Clinical and Laboratory Standards Institute (CLSI) guideline by disc diffusion [29]. Isolates with zones of inhibition that fell into the category of intermediate susceptibility to a given antibiotic were considered susceptible isolates.

Characterization of NF-associated ORSA isolates

Not to start sentence with number “16 NF-associated……”

Results

This section must be re-written to make article more clear, I would recommend flow of this section as following: authors should give demographic data of 247 NF patients firstly (including age, sex, involved site, underlying conditions (DM, etc) then etiologic causes of them should summarized in table (table 1 is OK but A% and B% part make table confusing those must be removed). Secondly patient characteristics of MRSA-NF cases should reported (including age, sex, involved site, underlying conditions, operations, community accrued or hospital occured) and they should report the risk factors for MRSA NF cases with respect to non-MRSA NF cases. After this authors should report the risk factors for hospital associated MRSA with respect to CA-MRSA. Also authors should give clinical and laboratory features of CA-MRSA. At the end PFGE and MLST types can be given as happened in body of article.

Discussion

“In contrast to the high mortality of group A Streptococcus, Vibrio species or polymicrobial synergistic infections, ORSA was not an important pathogen to cause NF [4,7].” I am not agree with authors since MRSA is an emerging
pathogen to cause NF and one of the aim of this study was to point importance of MRSA so this section must be re-written as MRSA was not common cause of NF.

** Authors can not use this sentence “all patients with ORSA infection required repeated surgical debridement and more patients required amputation, skin grafts, or reconstructive surgery, suggesting that ORSA may be actually important to cause destructive and deep-seated infection.” Since they did not make any comparison of MRSA vs MSSA NF cases so they should either compare those two and give results accordingly or should remove or re-write this section.

Ahmet SOYSAL MD, Asoch Prof.
Marmara University Department of Pediatrics
Division of Pediatric Infectious Diseases
Istanbul, Turkey

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests