Communications to the Editor

Hand Hygiene in the ICU

To the Editor:

In his prospective observational study concerning hand hygiene, Khatib et al.1 focused on hand washing and the use of gloves while manipulating patients receiving mechanical ventilation. We agree that hand hygiene is a cornerstone in the prevention of nosocomial infection; nevertheless, we want to add some information to the article by Khatib et al.1

In our ICU, the use of gloves is recommended whenever contamination of hands is possible. Gloves have to be removed between separated tasks on one patient and certainly between different patients. Indeed, using plasmid profile typing, Patterson et al.2 described transmission of Acinetobacter calcoaceticus var. anitratus in an intensive care unit. Am J Med 1991; 91:479–483

Concerning the hand washing technique, Khatib et al.1 did not mention how long the washing procedure must take. This is an important aspect because, even when using disinfecting soap, the washing procedure must take at least 2 min to be effective. Because of the high degree of urgency in critical care settings, achievement of this optimal standard of hygiene is not always possible. Therefore, in our ICU, hand hygiene is achieved by use of cutaneous antiseptic (isopropyl-alcohol 70° + glycerin). Also, when gloves are worn, this disinfectant must be applied between separated tasks on one patient and between tasks on different patients. Because hand washing is too time consuming, it is indicated only when hands are visibly dirty. Furthermore, we recommend the use of surgical masks when manipulating patients receiving mechanical ventilation to avoid hand-nose contact.

This, together with a reduction in antibiotic load, has led to an impressive reduction in antibiotic resistance in our ICU.3

Stijn Blot, RN, MA
Koenraad Vandevenne, MD
Francis Colardyn, MD
University Hospital Gent
Gent, Belgium

Correspondence to: Stijn Blot, RN, MA, Burn Unit, University Hospital Gent, De Pintelaan 185, B-9000 Gent, Belgium; e-mail: icu@rug.ac.be

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Stijn Blot and colleagues present some comments about our recent publication (July 1999) on the practice of hand washing and the use of gloves by respiratory care practitioners (RCPs) in the ICU. They highlight their experience with the use of cutaneous antiseptic, and they recommend the use of surgical masks.

Our study was aimed at evaluating the effectiveness of warning labels permanently attached to mechanical ventilators in improving the practice of hand washing and the use of gloves by respiratory care practitioners (RCPs) in the ICU. We evaluated the occurrence or frequency of hand washing rather than the practice of hand washing itself. Consequently, we felt no need to elaborate about the practice of hand washing in our ICU. However, we feel that this letter forum could be a chance to elaborate on the issue. As intended in our study, we focused our observations on RCPs. Their scope of services includes blood gas measurements, bronchodilator therapy, endotracheal tube management (eg, suctioning and tube fixation), mechanical ventilator management (eg, applying settings as ordered, checking settings, and alarm levels, assessing lung mechanics), as well as manipulation of breathing circuits (eg, changing breathing circuits and heat and moisture exchangers). Although RCPs do intubate patients in our ICU, these encounters were not considered part of the study, which was focusing only on patients who are already intubated and receiving mechanical ventilation. As such, there was not a real sense of urgency in the above-mentioned services that prohibited our RCPs from adequately performing hand washing (at least 1 to 2 min with antiseptic solution) and using gloves. As for Blot and colleagues’ recommendation to use surgical masks, we feel that this could be a good practice; however, it was not an objective of our study.

Mohamad Khatib, PhD
American University of Beirut
Beirut, Lebanon

Correspondence to: Mohamad Khatib, PhD, Department of Anesthesiology, PO Box 113-6044, Beirut, Lebanon; e-mail: MK05@aub.edu.lb

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TREATMENT OF RIGHT HEART THROMBOEMBOLI WITH IV RECOMBINANT TISSUE-TYPE PLASMINOGEN ACTIVATOR

To the Editor:

We read with interest the recent article by Greco and colleagues (July 1999). Among 30 patients admitted to their ICU with massive pulmonary embolism (PE), they detected 7 patients with right heart thromboemboli (RHTE) who were immediately treated with recombinant tissue-type plasminogen activator. This treatment was followed by rapid resolution of thrombus and improvement of hemodynamic status and echocardiographic parameters of acute right ventricular overload. In our opinion, this study raises two major questions.

First, in patients with massive PE, is the finding of RHTE really a "life-threatening event"? The high mortality rate of 40% was based on pooled case reports or case series. The majority of these patients presented with a dramatic clinical picture of massive PE (New York Heart Association class IV dyspnea, cardiogenic shock), which prompted echocardiographic evaluation. The prevalence of RHTE in nonmassive PE is unknown. In an observational study of 130 patients with massive PE, RHTE was present in 23 patients (18%) and did not carry a higher mortality than in patients without RHTE (30% vs 24%). There was no statistical difference in treatment allocation (heparin vs thrombolysis) between the two groups. RHTE might just represent an incidental finding, the bad prognosis being in fact due to massive PE. Indeed, massive PE complicated by shock has a high mortality rate (18 to 38%) by itself.

Second, what is the efficacy of thrombolytic therapy in the setting of RHTE? The fact that RHTE might not have an isolated prognostic significance raises strong doubts about the relevance of any specific treatment (thrombolytic agents or surgical thrombectomy) other than therapeutic anticoagulation. The study by Greco and colleagues showed disappearance of the thrombus and improvement of different hemodynamic variables. Thrombolytic therapy in PE quickly improves lung scans and angiographic or echocardiographic findings but has not been shown to reduce mortality. Moreover, thrombolytic therapy could double the number with severe bleeding (as compared with patients treated with heparin). In the study by Casazza et al., 5 of the 18 patients with massive PE and RHTE were treated with anticoagulant therapy and showed disappearance of the thrombus after several days without new symptoms.

In conclusion, we estimate that data on RHTE are too scarce to allow a conclusion on the benefits of thrombolytic therapy over anticoagulation in patients with PE and RHTE but no hemodynamic compromise. However, patients with massive PE and shock should receive thrombolytic treatment whether RHTE are present or not.

Michel Procopiou, MD
Arnaud Perrier, MD
Hôpital Cantonal
Geneva, Switzerland

Correspondence to: Michel Procopiou, MD, Department of Internal Medicine, Medical Clinic I, Hôpital Cantonal, CH 1211 Geneva 14, Switzerland; e-mail: Michel.Procopiou@hcuge.ch

REFERENCES


To the Editor:

The questions raised by Dr. Procopiou regarding our recent publication in CHEST (July 1999) confirm the great doubts and uncertainties that still exist about management of right heart thromboemboli (RHTE) detected by echocardiography during pulmonary embolism (PE). At the present time, prevalence and treatment of RHTE remain as two major unresolved problems. Prognostic significance, apparently clear and well defined, seems to be emerging as another question.

We know from the literature that detection of RHTE is commonly associated with proximal deep venous thrombosis and massive PE, frequently in cardiogenic shock. This complex clinical condition presents as a severe thromboembolic disease, with a proven high rate of short-term mortality. The retrospective study of Dr. Casazza et al. points out how the bad prognosis of these patients is probably the result of massive PE rather than RHTE itself, so that anticoagulation can be proposed as treatment of choice of RHTE in hemodynamic stability.

In the European Cooperative Study, the heparin group registered a high mortality rate and, although Tavel et al. suggest adding a vena cava filter to heparin infusion in hemodynamically stable patients with RHTE, this novel approach should be confirmed in term of efficacy. Moreover, even if we do not believe that treatment of RHTE with thrombolysis or surgical embolectomy will prevent an unpredictable and catastrophic embolization of these large floating clots in a pulmonary tree, where major embolisms had often previously occurred, we have seen that thrombolysis may favorably affect the clinical outcome of hemodynamically stable patients with massive PE. Thrombolysis over heparin leads to a rapid improvement of pulmonary perfusion and right ventricular function, with a lower rate of recurrent PE and death. Finally, intracranial hemorrhage after PE thrombolysis is an infrequent complication.

We believe, therefore, that thrombolysis can be the first-choice therapy, effective and safe, in this particular condition that we call RHTE syndrome (RHTE plus massive PE and proximal deep venous thrombosis), a critical and high-mortality clinical-instrumental picture. The term "life-threatening event" can reasonably summarize the latter concept. However, until a prospective, multicenter, randomized treatment trial is realized, the debate is far from over.

Francesco Greco, MD
Domenico Guzzo, MD
Arnaud Perrier, MD
Ospedale Civile
Cosenza, Italy