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Postoperative pneumonia or ventilator-induced lung injury? Response to Schultz

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Dear Editor,

We are glad to have the opportunity to explain our letter [1] dealing with acute respiratory distress syndrome (ARDS). Dr. Marcus Schultz wonders whether the “infectious ARDS cases” are truly pneumonias and whether they may be cases of “noninfectious ARDS”, as a consequence of intraoperative ventilation [2]. Dr. M. Schultz thought our patients developed ARDS within 1 week after surgery. However, our patients occurred ARDS within 6 months after transplantation, which was clearly described in our letter. In fact, approximately 80 % (60/72) of patients involved in the present study occurred within 4 months following renal transplantation and 76.4 % (55/72) between 3 and 4 months. Patients experienced an average duration of 97.5 days between renal transplantation and ARDS onset [interquartile range (IQR) 80.0–110.8 days]. Only one patient developed ARDS within 1 week after transplantation, and he did so 6 days after the operation.

In our other study regarding ARDS due to pneumonia including within and beyond 6 months posttransplantation, we found that approximately 80 % (76/94) of ARDS occurred within 6 months following renal transplantation. Patients experienced

an average duration of 102.5 days between renal transplantation and ARDS onset (IQR 82.8–153.3 days), which was in agreement with a previous study [3] suggesting that onset of infection was 85.8 ± 20.2 days postoperation in cytomegalovirus (CMV) infection accompanied by ARDS after renal transplantation.

ARDS was defined as arterial oxygen partial pressure/oxygen inspiratory fraction ($\text{PaO}_2/\text{FiO}_2$) ratio ≤ 300 , with positive end expiratory pressure ≥ 5 cm H_2O , accompanied within 1 week by: (1) a known clinical insult or new or worsening respiratory symptoms; (2) bilateral opacities on chest radiographs; and (3) respiratory failure not fully explained by cardiac failure or fluid overload. ARDS severity was categorized as mild ($200 \text{ mmHg} < \text{PaO}_2/\text{FiO}_2 \leq 300 \text{ mmHg}$), moderate ($100 \text{ mmHg} < \text{PaO}_2/\text{FiO}_2 \leq 200 \text{ mmHg}$), or severe ($\text{PaO}_2/\text{FiO}_2 \leq 100 \text{ mmHg}$). Both ARDS and its severity were measured according to the Berlin definition [4]. The diagnosis of pneumonia was defined in accordance with the criteria set by the Infectious Diseases Society of America/American Thoracic Society [5, 6]. All patients enrolled underwent X-ray chest and serological blood tests for CMV-PP65 antigen, anti-CMV IgG antibody, and anti-CMV IgM antibody, and/or CMV-DNA sputum analysis. Some patients received high-resolution computed tomography (CT) examinations and/or bronchoalveolar lavage (BAL). The “infectious ARDS cases” were indeed pneumonias.

References

1. Wan Q, Zhang P, Ye Q, Zhou J (2014) Acute respiratory distress syndrome in kidney transplant recipients. *Intensive Care Med*. doi:10.1007/s00134-014-3590-3

2. Schulz M (2014) Postoperative pneumonia or ventilator-induced lung injury? *Intensive Care Med*. doi:10.1007/s00134-014-3605-0
3. Ji SM, Li LS, Sun QQ, Chen JS, Sha GZ, Liu ZH (2007) Immunoregulation of thymosin alpha one treatment of cytomegalovirus infection accompanied with acute respiratory distress syndrome after renal transplantation. *Transplant Proc* 39:115–119
4. Ferguson ND, Fan E, Camporota L, Antonelli M, Anzueto A, Beale R, Brochard L, Brower R, Esteban A, Gattinoni L, Rhodes A, Slutsky AS, Vincent JL, Rubenfeld GD, Thompson BT, Ranieri VM (2012) The Berlin definition of ARDS: an expanded rationale, justification, and supplementary material. *Intensive Care Med* 38:1573–1582
5. American Thoracic Society; Infectious Diseases Society of America (2005) Guidelines for the management of adults with hospital-acquired, ventilator-associated, and healthcare-associated pneumonia. *Am J Respir Crit Care Med* 171:388–416
6. Mandell LA, Wunderink RG, Anzueto A, Bartlett JG, Campbell GD, Dean NC, Dowell SF, File TM Jr, Musher DM, Niederman MS, Torres A, Whitney CG; Infectious Diseases Society of America; American Thoracic Society (2007) Infectious Diseases Society of America/American Thoracic Society consensus guidelines on the management of community-acquired pneumonia in adults. *Clin Infect Dis* 44:S27–S72

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