

Moreover, PE has been reported to occur more frequently than DVT in patients suffering from chronic obstructive pulmonary disease, which is associated with a moderately increased risk of VTE [7].

It is possible that the association between severe asthma and PE, but not DVT, reported by MAJLOOR *et al.* [1] had a random component. However, if it is real, the differential effect of severe asthma on PE *versus* DVT occurrence might indicate that prolonged immobility and hospitalisation had no major impact on the VTE risk in this population, and allergic inflammation *per se* produces prothrombotic alterations, particularly if combined with the unfavourable effects of corticosteroids. Further investigations are needed to replicate the current findings by MAJLOOR *et al.* [1] and to elucidate their pathogenetic mechanisms, both genetic and environmental, including a potential influence of allergy on thrombosis.



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Recent epidemiological studies suggest that allergic diseases might increase the risk of venous thromboembolism <http://ow.ly/mK82P>

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Received: Jan 03 2013 | Accepted after revision: Jan 25 2013

Conflict of interest: None declared.

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*Eur Respir J* 2013; 42: 1157–1158 | DOI: 10.1183/09031936.00000913 | Copyright ©ERS 2013

From the authors:

We appreciate the suggestion by D.P. Potaczek and A. Undas that the overall allergic inflammation burden might have increased the risk of venous thromboembolism in our patients. Therefore, we performed a *post hoc* analysis in subgroups, after stratification for atopic and non-atopic asthma. But, again, we did not find any difference between the groups (table 1).

TABLE 1 Rate ratio (95% CI) of first pulmonary embolism and deep-venous thrombosis (asthma population *versus* general population)

|   | Non-atopic asthma | Atopic asthma     |
|---|-------------------|-------------------|
| <b>Subjects n</b>   | 358               | 290               |
| <b>All venous thromboembolism (definite and probable)</b> |                   |                   |
| Deep-vein thrombosis                                      | 1.60 (0.44–4.09)  | 1.47 (0.30–4.29)  |
| Pulmonary embolism  | 6.74 (3.09–12.80) | 6.19 (2.48–12.74) |
| <b>All definite venous thromboembolism</b>                |                   |                   |
| Deep-vein thrombosis                                      | 1.20 (0.25–3.50)  | 1.47 (0.30–4.30)  |
| Pulmonary embolism  | 6.75 (3.09–12.83) | 5.31 (1.95–11.57) |

With respect to the dissociation between the risk of deep venous thrombosis and pulmonary embolism, we very much agree with D.P. Potaczek and A. Undas that this suggests that the activation of haemostasis in our population is not due to prolonged immobilisation and hospitalisations, but is the result of inflammation in the airways *per se*. Of course, our findings have to be replicated in larger cohorts and more studies are needed to disentangle the underlying mechanisms, in particular with respect to asthma severity, type of airway inflammation and the use of corticosteroids.



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*Post hoc* analysis in subgroups, stratified for atopic and non-atopic asthma, reveals no differences in risk of VTE <http://ow.ly/mK7BW>

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Received: Feb 04 2013 | Accepted: Feb 11 2013

Conflict of interest: Disclosures can be found alongside the online version of this article at [www.erj.ersjournals.com](http://www.erj.ersjournals.com)

Eur Respir J 2013; 42: 1158–1159 | DOI: 10.1183/09031936.00021513 | Copyright ©ERS 2013

## Is the sensitivity of primary ciliary dyskinesia detection by ciliary function analysis 100%?

*To the Editor:*

We read with interest the article by PIFFERI *et al.* [1] in the April issue of the *European Respiratory Journal*, describing a technique of soft computing analysis to increase the diagnostic accuracy of air liquid interface cultures for the diagnosis of primary ciliary dyskinesia (PCD).

The diagnosis of PCD is indeed difficult, time-consuming and expensive [2, 3]. Extensive efforts have been made to increase the diagnostic accuracy of the available tests.

We worry that the authors miscalculated the statistical parameters sensitivity and specificity. Sensitivity reflects the accuracy of a new test to detect an abnormal result in a disease state (true positives), compared to the results of the gold standard to diagnose the disease state [4]. It is calculated by the formula  $a/a+b$ , in which a is the number of true positives and b the number of false positives (table 1). Specificity, on the other hand, reflects the accuracy of the new test to diagnose a normal value, compared to the gold standard (true negatives) [4]; it is calculated by the formula  $d/c+d$ , in which d is the number of true negatives and c the number of false negatives (table 1). In this study, the gold standard for diagnosis of PCD is defined as

TABLE 1 Definition of sensitivity and specificity for a new diagnostic test, compared to the gold standard

|               | Gold standard      |                    |
|---------------|--------------------|--------------------|
|               | Disease            | Health             |
| New test      |                    |                    |
| Abnormal test | a (true positive)  | c (false negative) |
| Normal test   | b (false positive) | d (true negative)  |