



Lung cancer staging: imagine fewer images

To the Editor:

The update on lung cancer staging published by the *European Respiratory Journal* [1] is a welcome overview of a field characterised by fast evolution of therapeutic modalities. The accurate staging of lung cancer is of utmost importance for an optimal outcome. Since value of care incorporates outcome over cost as a surrogate of the quality achieved [2], one must be very attentive in recommending the necessary staging investigations.

We take this notion further regarding the recommendation on the imaging of the central nervous system in patients with non-small cell lung cancer. RAMI-PORTA *et al.* [1] recommend cerebral imaging in all patients with curative therapeutic options, preferably by magnetic resonance imaging (MRI).

Although no one doubts about the prognostic importance of the detection of brain metastasis, we should also consider the impact of the investigation on the final outcome beyond the individual-patient level. Many older and more recent studies investigated the prevalence of occult brain metastasis [3–5]. Tumour size, presence of nodal metastasis and tumour type all appear predictive [6]. The overall prevalence in patients in whom a resection is planned ranges from 1% to 3% [3, 4, 6]. MRI is marginally better than contrast-enhanced computed tomography of the brain [3]. Most data originated before fluorodeoxyglucose positron emission tomography was incorporated into routine practice, meaning that the aforementioned figures are subject to selection bias. In patients with locally advanced lung cancer, the prevalence is >15% [5]. Besides prevalence, one should also consider cost. A recent evaluation in patients with resectable lung cancer estimated that 32% of the staging costs were from brain MRI although the prevalence of metastasis was only 1.3% [4]. Additional imaging can also cause treatment delays and increase the psychological burden on the patient. There are several reports on incidental or of false-positive findings leading to the denial of curative therapy.

In stage III, the indication for brain imaging is definite in all guidelines, taking into account the burden of multimodality treatments. There is, however, remarkable inconsistency in recommendations for patients with stages I–II. The American College of Chest Physicians recommends the brain should not be scanned in these patients [7]. The National Comprehensive Cancer Network guideline released in 2018 has a recommendation for stage IB–II but not for stage IA [8]. The National Institute for Health and Care Excellence (NICE) guidelines (2011) and European Society for Medical Oncology guidelines (2017) state that MRI of the brain might be useful for patients with curative intent, with NICE adding a comment that this is particularly the case for patients with stage III lung cancer [9, 10].

In our opinion, and contrasting with the recommendation to perform brain MRI for all patients [1], a more restrictive strategy is defensible, especially for those with a low risk of developing brain metastasis. There is a clear unmet need for prospective research in order to optimise the value of care delivered in these patients suffering a severe lung disease.

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There is no place for reflex brain MRI in any patient with early stage non-small cell lung cancer being considered for a therapy with curative intent <http://ow.ly/I5O530kI5vQ>

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From the authors:

We would like to thank K.G. Tournoy and J.P. Van Meerbeeck for their interest in our article [1]. In their letter, they raise important points that highlight the controversy surrounding the value of preoperative brain magnetic resonance imaging (MRI) in patients who can be considered for curative therapeutic option. We agree with them that accurate staging is essential for an optimal outcome.

We recommend searching for brain metastases in all patients with curative treatment options. VERNON *et al.* [2] showed that MRI is a low-yield and high-cost intervention in the population that was analysed, and therefore the role of MRI as a routine exam should be questioned. Conversely, the article published by O'DOWD *et al.* [3] showed that 71% of patients who developed brain metastases might have been detected if they had been scanned with MRI prior to surgical intervention. They found a 6.3% incidence of postoperative brain metastases, with the majority appearing within 12 months of surgery. These patients were more likely to have adenocarcinoma and an early stage (73% stage I or II). The European Society of Medical Oncology guidelines recommend screening for brain metastases by MRI in patients considered for curative therapy [4].

However, a recent study by MILLON *et al.* [5] demonstrated that MRI is better than computed tomography (CT) plus new reconstruction techniques. By adding MRI to positron emission tomography (PET)/CT, brain metastases can be detected in an additional 7% patients [6]. MRI is better than PET alone in the diagnosis of brain metastases as showed by DEUSCHL *et al.* [7]. These articles demonstrated that MRI remains the gold standard for detecting brain metastases [5–7].

To conclude, we think that to perform brain MRI is the optimal staging for patients with curative therapeutic options. However, this ideal recommendation will depend on the availability and the resources of each institution, and we concur with K.G. Tournoy and J.P. Van Meerbeeck that a more restrictive indication may apply in particular circumstances.

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Brain imaging with MRI is recommended for all lung cancer patients candidates for radical treatment
<http://ow.ly/FkgL30l6b6o>

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