

SEARCH OUTCOME

One hundred and sixty papers were found using the reported search. From these, three papers were identified that provided the best evidence to answer the question. These are presented in Table 1.

RESULTS

Only three studies compared adrenalectomy against non-surgical treatments.

Higashiyama *et al.* [4] reported on 9 patients with isolated adrenal metastasis from surgically resected NSCLC. Five patients who underwent adrenalectomy and adjuvant chemo/radiotherapy were compared against 4 patients that had palliative treatment. Mean survival was improved in the adrenalectomy group (22 months vs 3.5 months). The authors identified that the patients selected for adrenalectomy and adjuvant chemo/radiotherapy had a longer disease-free interval (DFI, mean 7.5 months in the adrenalectomy group vs 3.5 months). The authors noted that patients who otherwise had Stage I NSCLC at initial staging appeared to derive the greatest survival benefit from surgical resection of adrenal metastasis. The authors recommend that adrenalectomy should, therefore, be reserved for patients with otherwise early stage NSCLC which has been controlled, in whom the adrenal gland is the only site of metastasis and in whom the DFI is long (although this is not quantified). They also recommend resection of the lymph nodes regional to the adrenal to reduce the potential for further spread of malignancy from the metastasis itself.

The largest relevant series [2] reports a 5-year survival of 34% in the surgical group vs 0% in the non-surgical group. The surgical group did not have adjuvant chemo/radiotherapy. Selection for surgery was influenced by DFI, extent of comorbidities and patient choice. On multivariate analysis, ipsilateral adrenal gland metastasis was predictive of 5-year survival (83% in the ipsilateral group vs 0% in the contralateral group). This could be explained if ipsilateral adrenal metastasis represents a form of 'locoregional' spread via direct retroperitoneal lymphatic channels between lung and adrenal gland rather than haematogenous spread. Mediastinal lymph node involvement was also predictive of worse 5-year survival.

In the series from Luketich and Burt [3], all 14 patients had synchronous adrenal metastases and were, therefore, given platinum-based chemotherapy. Eighty patients were selected for subsequent surgery, while 6 patients had chemotherapy only. The basis for this selection is stated as surgeon and patient preference. The median survival was 8.5 months in the chemotherapy alone group vs 31 months in the chemotherapy + surgery group. In the surgically resected group the 3-year actuarial survival was 38%, and the longest recorded survivor at that stage of follow-up was 61 months. The patients in the two groups were well-matched for age, sex, performance status, size of adrenal metastasis and locoregional stage of NSCLC.

Other case series in the literature have investigated other predictors of survival after adrenalectomy for isolated NSCLC metastasis. Whether the metastasis is synchronous (diagnosed within 3–6 months (definition varies in different studies) of the lung primary) or metachronous (diagnosed 3 months or longer after the lung primary) is thought to be important. Tanvetyanon *et al.* [5] performed a systematic review of 10 publications and pooled analysis of 114 patients (42% synchronous and 58% metachronous) to address this question. They identified that median survival was shorter for the patients with synchronous adrenal metastasis (12

months vs 31 months, $P = 0.2$). The median DFI was 0 in the synchronous group vs 12 months in the metachronous group.

CLINICAL BOTTOM LINE

Surgical resection is associated with increased duration of survival for selected patients with isolated adrenal metastasis from NSCLC. Factors that are probably important are:

- (i) Otherwise early stage NSCLC at initial staging.
- (ii) R0 resection.
- (iii) Long DFI.
- (iv) No evidence of other metastasis.

Ipsilateral adrenal metastasis may represent relatively early lymphatic spread, and therefore, these patients may derive more benefit from adrenalectomy. Intuitively, a favourable response to chemotherapy may identify potential treatment candidates.

Conflict of interest: none declared.

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eComment. Does adrenalectomy in lung cancer improve survival?

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We have read with great interest the review from Sastry *et al.* [1]. Surgery is the main treatment protocol for non-metastatic lung cancer. Distant metastasis is suggested as stage 4 disease and surgery is not performed for these tumours. Surgery for solitary brain metastasis has been shown to prolong survival [2]. However, adrenalectomy in non-small-cell lung cancer is controversial. Several studies have been performed [3, 4] investigating the effect of adrenalectomy in non-small cell lung cancer. As a general rule of lung cancer treatment, we do not perform surgery for lung cancer patients who have distant metastasis. But we think that patients having only adrenal metastasis with a T1-2 tumour can be considered separately from this distant metastasis group and should be discussed within a multidisciplinary approach for adrenalectomy to improve survival. We report here our institutional results of adrenalectomy in non-small-cell lung cancer patients.

We operated on three synchronous isolated adrenal metastatic lung cancer patients [5]. All patients underwent lobectomy with lymph node dissection which revealed no mediastinal involvement. The first patient was operated on after neoadjuvant

chemotherapy and the other two patients were submitted to surgery before subsequent adjuvant chemotherapy. One patient had bilateral adrenal metastasis; the other two had contralateral adrenal metastasis. The patients died 5 to 8 months after surgery.

We agree with the authors that patient selection is the key point in performing surgery. We applied surgery for contralateral and bilateral adrenal metastasis and our results are not convincing. As mentioned in the article from Sastry *et al.*, ipsilateral adrenalectomy can be performed because improved survival has been shown [1]. We do not recommend adrenalectomy in patients with contralateral or bilateral adrenal metastasis.

We thank Sastry *et al.* for their study. We think that further studies are needed to constitute criteria for adrenalectomy in non-small-cell lung cancer patients.

Conflict of interest: none declared

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