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Geriatric evaluation in lung cancer care: a survey of daily practice

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Summary. *Background:* To identify ways to improve care for older lung cancer patients, we set out to examine how older lung cancer patients in the Netherlands are currently being analysed prior to oncological treatment and to explore the potential obstacles in the incorporation of a routinely performed geriatric evaluation. *Methods:* We sent a web-based survey to 138 Dutch pulmonologists specialized in lung cancer care between April and September 2015. *Results:* The response rate was 37%. According to the answers of the responding pulmonologist, a geriatric evaluation was available in 90% of the hospitals. This was performed routinely in a minority of the hospitals (45%) on the basis of age (18%), with use of some form of screening tool (27%), however mostly performed on ad hoc basis (56%). More than half (52%) of the respondents answered to be not, or not completely, satisfied with current geriatric evaluation. The main obstacles for implementing geriatric evaluation in standard care were lack of a structured format for this evaluation and lack of geriatric oncologic expertise. *Conclusion:* There is interest in the incorporation of a geriatric evaluation in the care for the heterogeneous elderly population with lung cancer. However, at the moment the optimal set-up for geriatric oncologic care is lacking. There seems to be no consensus about the optimal design in terms of patient selection, timing and use of screening tools. A closer collaboration between pulmonologists specialized in lung cancer care and geriatricians could help to improve appropriate care for elderly patients with lung cancer.

Key words: elderly, frail, geriatric assessment, lung cancer

Introduction

In the Netherlands, over 12,000 patients are diagnosed with lung cancer annually (1). Like elsewhere, half of these patients are over 70 years old, making lung cancer predominantly a disease of the elderly (1). The numbers of elderly patients are expected to rise in the next years due to prolonged life expectancy (2).

Many questions still remain unanswered regarding optimal lung cancer treatment for older patients. As ageing is an individual process that varies in comorbidity, remaining functional capacity, disabilities and geriatric conditions, treatment regimens investigated in fit, younger patients cannot automatically be extrapolated to older patients (3). Tailoring of care is mandatory, based on a thorough evaluation of the patient's overall health status in addition to tumour characteristics and preference of the patient. However, most physicians have never received specific training on the particular needs of older patients with cancer (4). Lack of this specific training can make them uncomfortable in decision-making for this population (4). In addition, elderly cancer patients have reported that their individual situation, including concurrent diseases and psychosocial status should receive more attention in the decision-making process (5).

Over the past years, international research groups have addressed this issue by advocating the incorporation of a geriatric evaluation into the standard oncological work-up to improve cancer care for older patients (3,6). A geriatric evaluation is used to assess the patient's health status across multiple domains (7). It can be used to identify previously unrecognized health issues which may guide treatment decisions and which can possibly be modified to improve quality of life and outcomes (8-10).

However, a geriatric evaluation in lung cancer practice is not yet implemented in standard care. It is unclear whether this is due to logistical issues such as insufficient time or personnel for performing the evaluation or insufficient support or priority among the involved professionals. Identifying these underlying obstacles could provide more clarity on the next steps that can be taken to improve lung cancer care for older patients.

The goal of our study was to examine how older patients with lung cancer are currently being evaluated prior to initiation of oncological treatment in the Netherlands and to explore the potential obstacles in the incorporation of a routinely performed geriatric evaluation.

Materials and methods

We developed an anonymous web-based survey and used software developed by SurveyMethods, Inc. (http://www.surveymethods.com). This questionnaire focused on the main issues related to geriatric evaluation in lung cancer care. The content of this survey is shown in Figure 1. Briefly, the first part of the questionnaire focused on the current methods of evaluating older lung cancer patients prior to oncological treatment. The second part focused on satisfaction with current practices in this treatment, possibilities for improvement and potential barriers for the incorporation of a geriatric evaluation. Questions ranged from multiple choices to open answers.

Between April 2015 and September 2015, this survey was sent to all 138 members of the Dutch Taskforce for Pulmonary Malignancies of the Dutch Lung Society (NVALT). We have sent the survey to their private e-mail address, the survey was only available via the link in the e-mail. The NVALT is the professional association for pulmonologists in the Netherlands. This taskforce consists of all NVALT members specialized in pulmonary malignancies.

No statistical analyses were performed only descriptive data are presented.

Results

Response rate and respondent characteristics

The overall response rate to the questionnaire was 37% (51/138). Characteristics of the respondents are listed in Table 1. Responses came from all over the country, covering 12 provinces of the Netherlands and a range of hospital types, including primary, secondary and tertiary referral centres were represented.

Geriatric evaluation in daily lung cancer practice

According to the answers of the respondents to this survey, in 90% of the hospitals some form of geriatric evaluation is performed, ranging from an occasional, ad hoc assessment to a routine assessment of all oncologic patients aged 70 years or older. As visualized in Figure 2, the way that patients are selected for a geriatric assessment differs. In 56% the pulmonologists or oncologic specialized nurses refer patients as needed based on their own clinical judgement or based on the opinion of the multidisciplinary team for lung cancer treatment. On the other hand, 18% of the respondents answered that patients are routinely referred when reaching a particular age. Other methods for patient selection include some form of frailty screening tool (15%), the Geriatric Navigator (6%)(11) – a Dutch web-based instrument for assessing overall health status and the presence of particular geriatric impairments, developed specifically for older cancer patients – and 6% used a combination of these tools. In addition, in some hospitals non-specialized nurses or were involved in this selection.

As the way that patients are selected for a geriatric evaluation differs, the involved healthcare professionals for the geriatric evaluation selection process differ

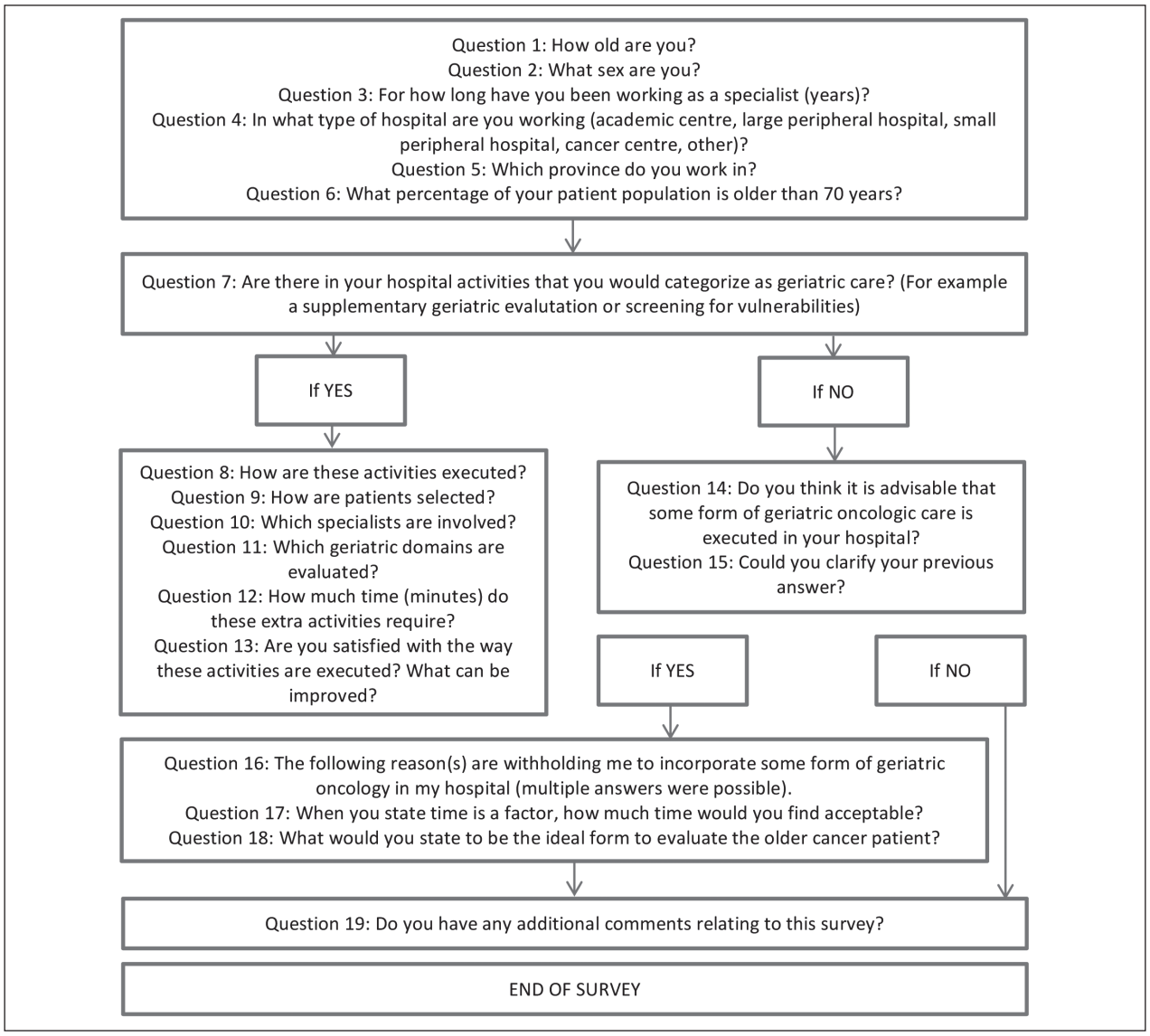

Figure 1. Content of survey (translated from Dutch)

as well. There is a wide range of professionals involved in this process ranging from geriatricians (74%), oncologic specialized nurses (68%), geriatric specialized nurses (32%), physiotherapists (6%) to psychiatrists and psychiatric nurses (9%).

When geriatric evaluations are being performed – routinely or ad hoc – 45% of the respondents reported that at least four different geriatric domains are examined and 35% examine eight domains or more. Domains that are most frequently investigated, besides comorbidity and polypharmacy, are nutritional status (81%), activities of daily living (71%), cognition (68%) and social network (68%). Instrumental activities of daily living (32%) and mood (48%) were the least examined domains. The median time that a geriatric evaluation requires is reported as 20 minutes, with a range between 1 and 120 minutes.

Satisfaction with current practices

The respondents who reported to have implemented a form of geriatric evaluation for their elderly

Table 1. Characteristics of respondents

	Total (n=51)
Response rate	51/138 (37%)
Median age of respondent (range)	49 (33-61)
Years of experience as medical specialist (range)	11 (0-28)
%female	30%
Type of hospital	
Academic	12%
Large peripheral	64%
Small peripheral	22%
Tertiary/categorical	2%
Median % patients over 70 years old	50% (20-80)

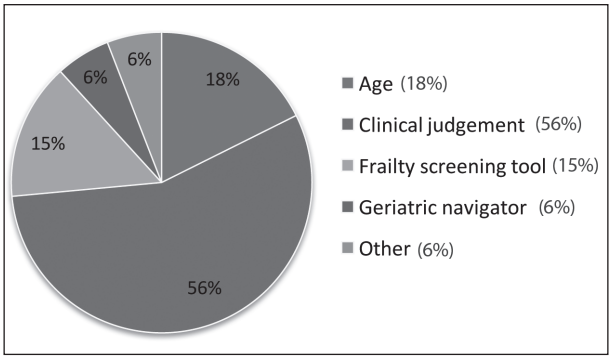

Figure 2. Selection of patients for geriatric assessment

cancer patients were asked how satisfied they are with current practice. One-quarter stated to be completely satisfied. Over half (52%) answered that they are not, or not completely, satisfied with the way the geriatric evaluation is performed in their hospital at the moment .The primary issue – as reported by 2/3 of these respondents – is the lack of a consistent, structured set-up for the geriatric evaluation. Many pulmonologists declared that they struggled with finding the right format and a lack of experience with available screening tools. There seems to be no consensus about the design of this evaluation, about the patient selection, the timing, the focus of geriatric domains, the use of screening tools and the required action that need to be taken following the geriatric evaluation.

Another issue that was mentioned was the oncologic expertise of the geriatricians in their hospital: 19% of the dissatisfied respondents answered that the geriatricians only provide general recommendations but are lacking specific expertise in the treatment or decision-making for older cancer patients.

A third issue is the extra costs of this evaluation, as described by 10% of the dissatisfied respondents. They answered that they are worried about the efficacy and economic issues of health care.

Discussion

Lung cancer is often diagnosed in advanced stages, generally progresses rapidly, and is mainly a disease of elderly patients (1). As the elderly represent a heterogeneous population, special attention and tailoring of care is needed for this patient population (12). This study provides an insight in the current use of geriatric evaluation of lung cancer patients in the Netherlands and describes the encountered obstacles for implementation of standard geriatric oncologic care in patients with pulmonary malignancies. According to the answers of the responding pulmonologist, a geriatric evaluation is available in 90% of the hospitals. This is performed routinely in a minority of the hospitals on the basis of age (18%) or with use of some form of screening tool (27%) and mostly performed on ad hoc basis (56%). More than half (52%) of the respondents answered to be not, or not completely, satisfied with current geriatric evaluation of their patients. The main issue is the lack of a structured format, which is considered mandatory for incorporation of a geriatric evaluation in oncologic care and the decision making process.

A recent survey about geriatric oncologic care among Dutch cancer specialist (surgeons, radiotherapist, medical oncologist and geriatricians) showed comparable outcomes as described in our study (13, 14).They declared that the use of geriatric evaluations in elderly cancer care was confirmed by half of the respondents, varying from 65% of medical oncologist tot 27% of radiation oncologists (13). It was routinely performed in one third of the patients; in another third the geriatric evaluation was performed on an ad hoc basis only and the remaining third did not elaborate on its execution. Cancer specialists seem to be inter-

ested in introducing a geriatric oncology program and a closer collaboration with geriatricians (15). However, a lack of priority and uncertainty of the optimal set-up for a geriatric oncology program remain important obstacles (13-15).

At the moment, treatment decisions in lung cancer care are based on clinical assessment in combination with age and performance status discussed at the multidisciplinary tumour board meeting. However, as ageing is an individual process, chronological age does not necessarily reflect one's biological age (12). In addition, age is not found to be predictive for survival of elderly lung cancer patients (16, 17). While performance status has a significant association with survival, it has been suggested that within the elderly population, performance status alone is insufficient in discriminating between fit and vulnerable patients (3).

The identification of frail patients can be improved by using a geriatric assessment. However, the relevance of a geriatric assessment in lung cancer care has not been extensively researched. Geriatric impairments are highly prevalent, even in patients with good performance status, and are of prognostic significance (17-23). In particular, impairments in objectively measured physical capacity and impairments in nutritional status are predictive of early mortality (16-18, 21, 22, 24). Furthermore, the information revealed by a geriatric assessment can lead to changes in oncologic treatment choices as well as non-oncologic interventions (25, 26). In addition, a geriatric assessment-stratified treatment allocation can potentially decrease overall toxicity and aggressiveness of treatment without decreasing efficacy (27). Thus, there are sustainable arguments for the implementation of geriatric assessments in pulmonary oncology.

At the moment little is known about the effects of applying guideline recommended treatment in elderly cancer patients. An analysis of the NIH trial registry showed that elderly patients and those with comorbidities are often excluded from participation in clinical trials (28). We do take a risk when we apply these treatments on frail and elderly patients. More research that includes these patients is urgently needed.

This study has several limitations. First, we used open-ended questions to give the respondents the opportunity to freely provide their input. However, this required a secondary interpretation and categorization of answers. We tried to make this interpretation as objective as possible by using a mix between open-ended and pre-formulated answers. Second, the response rate was only 37%, which is a well-known issue in survey-based studies. In addition, it is not unlikely that those pulmonologists with special interest for geriatric oncology answered this survey, which makes it unclear if these answers are representative for all oncologic pulmonologists. Despite these limitations, this is the first study that provides information about the use and the encountered obstacles for a geriatric evaluation in lung cancer patients.

A suggestion to improve geriatric evaluation in lung cancer patients would be an intensified cooperation between lung cancer specialists and geriatricians, for example by including a geriatrician in the multidisciplinary tumour board meetings. At these meetings patient centred information is often lacking and the available information is mainly disease specific (29). Knowledge on physiological ageing, remaining functional capacity in combination with comorbidity is of major importance for the assessment of a patient's ability to tolerate treatment (29). The presence of geriatricians at the MDT can lead to increased patient-centred decision-making (30). However, in addition to the urge of specific training of oncologists on the particular needs of elderly cancer patients, geriatricians need a specialized training in oncological care as well (4). Only a quarter of the responding geriatricians in the survey among Dutch cancer specialists reported that elderly cancer patients received a routinely performed geriatric evaluation prior to the initiation of oncologic treatment, and unfortunately many geriatricians reported that optimising cancer care for elderly patients was currently not a priority at their centre (14). Given the significant burden and complexity of cancer for the elderly, geriatricians are encouraged to share their expertise with other specialists to be able to optimise care for elderly cancer patients (14). The cooperation between pulmonologists and geriatricians only has an additional value if they both exactly know what their role is and if there is a format of what may be expected from their consultation (15).

Conclusion

There is interest among oncologic pulmonologists in the incorporation of a geriatric evaluation in the care for the heterogeneous elderly population with lung cancer. However, at the moment a structured format of a geriatric evaluation for this category of patients is lacking. There is no consensus about the optimal design of this evaluation in terms of patient selection, timing, use of screening instruments and the required action that need to be taken following the geriatric evaluation. A closer collaboration between lung cancer specialists and geriatricians could help in bridging the gap between geriatrics and oncologic care to optimize the treatment of lung cancer in elderly patients.

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KJGS: made substantial contribution to conception and design, acquisition, analysis and interpretation of data, drafting the article and final approval of the version to be published.
MEH: made substantial contribution to conception and design, analysis and interpretation of data, revising the article critically for important intellectual content and final approval of the version to be published.
JWJL: made substantial contribution to conception and design, revising the article critically for important intellectual content and final approval of the version to be published.
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References

1. Kerncijfers over kanker [Internet]. Available from: www.cijfersoverkanker.nl at 1st May 2016
2. Bevolkingscijfers. Available from: www.cbs.nl at 1st May 2016
3. Extermann M, Aapro M, Bernabei R, Cohen HJ, Droz JP LS et al. Use of comprehensive geriatric assessment in older cancer patients: recommendations from the task force on CGA of the International Society of Geriatric Oncology (SIOG). Crit Rev Oncol Hematol 2005; 55(3): 241-52.
4. Kalsi T, Payne S, Brodie H, Mansi J, Wang Y, Harari D. Are the UK oncology trainees adequately informed about the needs of older people with cancer? Br J Cancer England; 2013 May; 108(10): 1936-41.
5. Rapport ouderen en borstkanker available from: http://www.borstkanker.nl/rapport_ouderen_en_borstkanker. at 1st May 2016.
6. Hurria, A, Cohen, HJ, Extermann M. Geriatric Oncology Research in the Cooperative Groups: a report of a SIOG special meeting. J Geriatr Oncol 2010; 1(1): 40-4.
7. Extermann M, Aapro M, Bernabei R, Cohen HJ, Droz JP, Lichtman S et al. Use of comprehensive geriatric assessment in older cancer patients: recommendations from the task force on CGA of the International Society of Geriatric Oncology (SIOG). Crit Rev Oncol Hematol 2005; 55(3): 241-52.
8. Hamaker ME, Prins MC SR. The relevance of geriatric assessment for elderly patients with a haematological malignancy – A systematic review. Leuk Res 2014; http://dx.doi.org/10.1016/j.leukres.2013.12.018.
9. Balducci L. Geriatric oncology: Challenge for the new century. Eur J Cancer 2000; 36: 1741-54.
10. Extermann M, Meyer J, McGinnis M, Crocker, Theresa T, Corcoran M-B, Yoder J, et al. A comprehensive geriatric intervention detects multiple problems in older breast cancer patients. Crit Rev Oncol Hematol 2004; 49: 69-75.
11. Gerionne. Geriatric Navigator. Available from: geriatric-navigator.gerionne.nl
12. Balducci L EM. Management of cancer in the older person: a practical approach. Oncologist 2000; 5: 224-37.
13. Schiphorst AHW, Jonker JM, Smorenburg CH, Struikmans H, Rozema T, Pronk A, et al. Geriatrische oncologie in Nederland: een enquête naar de huidige zorg, knelpunten en mogelijkheden tot verbetering. Ned Tijdschr Oncol 2014; 11: 293-300.
14. Hamaker ME, Jonker JM, Maas HA, Schiphorst AH, Portielje JEA, Smorenburg CH. The geriatricians' perspectives on geriatric oncology in the Netherlands – results of a national survey. Eur Geriatr Med [Internet] 2014 Aug; 5(4): 265-9. Available from: http://www.sciencedirect.com/science/article/pii/S1878764914000400
15. Kenis C, Heeren P, Decoster L, Van Puyvelde K, Conings G, Cornelis F, et al. A Belgian Survey on Geriatric Assessment in Oncology Focusing on Large-Scale Implementation and Related Barriers and Facilitators. J Nutr Health Aging France; 2016 Jan; 20(1): 60-70.
16. Dal Molin GZ, Lima GE, Iennaco PS, Pereira ATAR, Felismino TC, Freitas HC, Figueroa BCM, Sanches SM, Fanelli MF DA. Correlation of comprehensive geriatric assessment (CGA) with mortality in elderly patients with lun cancer: A single institution cohort analysis. Eur J Cancer 2013; 49(suppl 2): S340–1.
17. Girones R, Torregrosa D, Maestu I, Gómez-Codina J, Tenias JM RCR. Comprehensive Geriatric Assessment (CGA) of elderly lung cancer patients: A single-center experience. J Geriatr Oncol 2012; 3: 98-103.
18. Borget I, Corre R, Le Caer H, Locher C, Raynaud C, Decroisette C, Berard H, AUdigier-Valette C, Dujon C, AUliac J.-B, Crequit J, Monnet I, Vergnenegre A CC. Impact of a comprehensive geriatric assessment on management

of strategies in elderly patients with advanced no small cell lung cancer (NSCLC); A polled analysis of two phase 2 prospective study of the GFPC group. J Thorac Oncol 2013; 8(suppl 2): S1175–6.
19. Cudennec T, Gendry T, Labrune S, Giraud V, Moulias S, Teillet L CT. Use of a simplified geriatric evaluation in thoracic oncology. Lung Cancer 2010; 67: 232-6.
20. Dujon C, Azarian R, Azarian V PP. Cancer bronchique du sujet âgé; Performance Status et/ou indices gériatriques? Rev Mal Respir 2006; 23: 307-18.
21. Maestu I, Muñoz J, Gómez-Aldaravi L, Esquerdo G, Yubero A, Torregrosa MD RR. Assessment of functional status, symptoms and comorbidity in elderly patients with advanced non-small cell lung cancer (NSCLC) treated with gemcitabine and vinorelbine. Clin Transl Oncol 2007; 9: 99-105.
22. Maione P, Perrone, Gallo C, Manzione L, Vito Piantedosi F, Barbera S, Cigolari S RF. Pretreatment quality of life and functional status assessment significantly predict survival of elderly patients with advanced non-small-cell lung cancer receiving chemotherapy: a prognostic analysis of the multicenter Italian lung cancer in the elderly s. J Clin Oncol 2005; 23(28): 6865-72.
23. Kenis C, Heeren P, Bron D, Decoster L, Moor R, Pepersack T, et al. Multicenter implementation of geriatric assessment in Belgian patients with cancer: a survey on treating physicians' general experiences and expectations. J Geriatr Oncol Netherlands; 2014 Oct; 5(4): 431-8.
24. Biesma B., Wymenga ANM, Vincent A, Dalesio O, Smit HJM, Stigt JA, Smit EF, van Felius CL, van Putten JWG, Slaets JPJ, Groen HJM and on behalf of the DCPSG. Quality of life, geriatric assessment and survival in elderly patients with non-small-cell lung cancer treated with carboplatin–gemcitabine or carboplatin–paclitaxel: NVALT-3 a phase III study. Ann Oncol 2011; first published online January 20, 2011 doi:10.1093.
25. Cheng HB, To T, Joshi R SN. Outcomes of geriatric assessment for older lung cancer patients from a dedicated geriatric oncology program. J Thorac Oncol 2011; 6(6 suppl 2): S1221-2.
26. Vanacker L, Kenis C, Van Puyvelde K, Flamaing J, Schallier D, Vansteenkiste J, Conings G, Nakaerts K, Pierre Lobelle J, Milisen K, De Grève J, Wildiers H DL. Impact of geriatric assesment on treatment decisions in older lung cancer patients. J Thorac Oncol 2013; 8(suppl 2): S241.
27. Corre R, Chouaid C, Greillier L, Le Caer H, Audigier Valette C, baize N, Berard H, Falchero L, Monnet I, Dansin E, Vergnenegre A, Marcq M, Decroisste C, Bota S, Lamy R, Massuti B, Dujon C, Fraboulet G, Minquet J, Plassot C LH. Phase III, randomized, multicenter study comparing in elderly patients (≥70 years) with stage iv non-small cell lung cancer (NSCLC) a standard strategy of treatment allocation (carboplatin) based bi-therapy or monotherapy with docetaxel) based on performa. J Thorac Oncol 2013; 8(suppl 2): S192-3.
28. Van Bekkum M, van Munster B, Thunnissen P, Smorenburg C, Hamaker ME. Current palliative chemotherapy trials in the elderly neglect patient-centered outcome measures. J Geriatr Oncol 2015; 6(1): 15-22.
29. Lamb BW, Sevdalis N, Arora S, Pinto A, Vincent C, Green JSA. Teamwork and team decision-making at multidisciplinary cancer conferences: barriers, facilitators, and opportunities for improvement. World J Surg United States; 2011 Sep; 35(9): 1970-6.
30. Lamb BW, Taylor C, Lamb JN, Strickland SL, Vincent C, Green JSA, et al. Facilitators and barriers to teamworking and patient centeredness in multidisciplinary cancer teams: findings of a national study. Ann Surg Oncol United States; 2013 May; 20(5): 1408-16.

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