Lung Cancer in Bahrain (1952-2004)

To the Editor: We read with interest the paper on ‘The incidence of lung cancer in the Gulf Cooperation Council countries’ by AltHamdan et al. We are particularly concerned about the number of Bahraini patients with lung cancer included in this paper from the Gulf Centre for Cancer Registration. As such, we wish to provide a short critique of the paper and contribute additional data from Bahrain.

Applying the same WHO criteria as those used by Al-Hamdan, we reviewed all the histopathology and hematopathology archives from all government and private hospitals and clinics in Bahrain between 1952 and 2004. During these 52 years, there were 7336 Bahraini patients with malignant neoplasia, 3972 males and 3364 females (Table 1). There were 541 (7.4%) patients with primary lung cancer; 427 (79%) male, 114 (21%) females and sex ratio of 3.7:1. Primary lung cancer ranked 2nd and 11th most common cancer in the males and females respectively. It also accounted for 10.8% and 3.4% of all malignancies in the males and females respectively. Breast cancer was the most common primary malignancy in the general and female cancer population.

In Al-Hamdan, based on 1998-2001 data, there were 204 Bahraini patients with lung cancer; 151 males, 53 females and sex ratio of 2.8:1. Lung cancer ranked first and second most common cancer in Bahraini males and females respectively. It also accounted for 20% and 12.1% of all malignancies in the male and females cancer patients respectively. However, during the same period (1998-2001) we found only 54 (47 males and 7 females) patients in the pathology registries and not 204 patients as cited by Al-Hamdan. This deficit of 150 raises two main questions.

Firstly, the exact origin of the additional 150 Bahraini patients must be questioned. It is quite possible that we may have missed a few cases from the pathology registries, but it is highly unlikely that we missed as many as 150. There are a number of possible explanations for this discrepancy: (a) The Bahrain data included lung cancer patients diagnosed before 1998 or after 2001. But this would put the Bahrain figure outside the standardized inclusion criteria of the period under study, thus doubting the comparative results of the entire report. (b) There is inflation of the Bahrain figures by including cases unaccounted for. We found 49 non-Bahraini patients in the pathology registries diagnosed between 1952-2004 and another 13 patients diagnosed between 1967-1998 as metastatic tumours and malignancies of unknown behaviour whether primary or metastatic (i.e. ICD-O behavioural codes B/6 and B/9 respectively). However, even if these 62 patients are added it would still not account for the 150 patient deficit. (c) There are technical errors of cancer registration such as counting multiple biopsies or cytology aspirates obtained from the same lesion and same patient according to their number. (d) The data may have included histologically unconfirmed but clinically diagnosed cases. But the analysis of the histological pattern of lung cancer provided is against this assumption.

Second, in view of the sampling ambiguities any interpretation of data related to Bahrain would send the wrong messages about the frequency, rank, ASR, gender distribution, sex ratio, and histological pattern of cancer patients in general and those of lung in particular. We

Table 1: The main results on lung cancer in Bahrain between 1998-2001 by Al-Hamdan from Gulf Centre for Cancer Registration as compared those of the same period and between 1952-2004 from pathology registries in Bahrain.

| Differences          | Al-Hamdan et al 1998-2001 | Bahrain 1998-2001 | Bahrain 1952-2004 |
|----------------------|---------------------------|-------------------|-------------------|
| All Cancers          | Total                     | 1234              | 7336              |
|                      | Males                     | 588               | 3972              |
|                      | Females                   | 646               | 3364              |
| Lung Cancer          | Total                     | 204               | 54                |
|                      | Males                     | 151               | 47                |
|                      | Females                   | 53                | 7                 |
| Sex Ratio            |                           | 2.8:1             | 6.7:1             |
|                      | Rank in Males             | 1                 | 4                 |
|                      | % in Males                | 20.0              | 9.2               |
|                      | Rank in Females           | 2                 | 14                |
|                      | % in Females              | 6.8               | 0.6               |
| ASR                  | All population            |                   | 6.2               |
|                      | Males                     | 34.3              | 10.4              |
|                      | Females                   | 12.1              | 2.6               |

ASR= Age Standardised Incidence Rate /100,000.
equally question the population data used in the calculation of the standardized rates as these may either be wrong or non-representative of Bahrain or other Arabian Gulf states. We also note the following: (a) The 34.3 and 12.1 age standardized rate (ASR) of lung cancer for males and females in Bahrain cited by Al-Hamdan are not only higher than those of other populous Arabian Gulf states but would put the tiny 405 667 population of Bahrain on par with rates in Europe, North America, Japan, China, Australasia and Southeast Asia.2,3 We feel the 10.4 and 2.6 ASR reported in this communication for males and females respectively, are more realistic and representative of the incidence of lung cancer in Bahrain. They are also consistent with data from other Gulf states.2,4,6 (b) There is no adequate explanation for the higher rates of lung cancer in Bahrain as compared to those of the nearby Arabian Gulf countries, which share many common family, genetic, environmental and socioeconomic factors. Smoking cannot be the sole factor. Otherwise, it would mean that one in every 5 persons in Bahrain will develop lung cancer during their lifetime. Furthermore, while we do not doubt the association of smoking and lung cancer, we note that all support data used in the Al-Hamdan et al paper are indirect and refer to the prevalence of smoking in the Arabian Gulf countries. It would have been more meaningful if the authors obtained direct information about smoking among lung cancer patients themselves and correlated this with the anatomical distribution and the histology of the tumours. These gaps imply that the returned cancer notification forms for cancer registration were primarily deficient in fundamental data. (c) The frequency of breast cancer as the most common cancer in Bahrain and in many other Arabian Gulf counties must not be ignored.2,4,6

There are 11 names on the authorship list of Al-Hamdan et al paper of whom at least 6 are registrars of their local cancer registries.7 This raises an ethical issue of authorship. Thus while we stress that the validity of published data of any cancer registry is determined by the amount of histopathology confirmation of the cases, we note that in Al-Hamdan study, the effort of the entire behind the scene workforce including histopathologists, who contributed significantly towards its publication, was ignored and not even acknowledged. The international standard of biomedical journals is clearly against this form of authorship unless “contributorship” is acknowledged.7,8 We need to stress that the possession of data contributed by others and the administrative affiliation of the “contributorship” are not criteria for authorship.7,8

Fayek A. Alhilli,* Das S. Nagalla,* Abdulla Darwish,† Ali Abalkhail,‡ and Naseem Ansari‡

From the *Department of Pathology, Salmaniya Medical Complex, Bahrain, †Department of Pathology, Bahrain Royal Defense Forces Hospital, Bahrain and the ‡Department of Pathology, Arabian Gulf University, Bahrain

Correspondence and reprint requests: Professor Fayek A. Alhilli, Pathology, Salmaniya Medical Complex, PO Box 12, Bahrain
T: +97317279513
F: +97317279649
failili@hotmail.com

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