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Short Communication

New data tells us more about cancer incidence in North Africa

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ABSTRACT

Over the last few years, Cancer Registries in North Africa (Morocco, Algeria, Tunisia, Libya, Egypt) increased in number from one to nine, and now covers 13% of the total regional population. Their data can be considered of good or acceptable quality, according to available indicators. The pattern of risk shown by these Registries is quite unique. The total cancer burden in North Africa countries is between one third and one half of what is observed in Europe. The overall incidence rate in men (world age standardised, per 100,000) ranges from 86.3 in Sétif, Algeria, to 156.1 in Garbiah, Egypt. The range is similar in women: from 80.3 in Sétif to 164.0 in Algier, both Algeria. The case mix and the level of rates are quite homogeneous in the countries considered. The most frequent cancers are the same as in Europe (Lung, Breast, Prostate). This pattern completely differs from that of Central and Southern Africa countries, where infection-related cancers are predominant. The well-known excess risk for nasopharyngeal carcinoma in this area is confirmed, with rates reaching the level of 5.4 in men and 1.9 in women, which is 10 times higher than in Europe.

For long, just one Cancer Registry in North Africa contributed almost regularly with its data to the series 'Cancer Incidence in Five Continents' (CI5C): the Algerian Registry of Sétif.[1] When the Sétif Registry was unable to contribute to CI5C (Volume VIII), another Algerian Registry, that of Algiers, provided its data.[2] Algeria has thus been the only country in the region in which the burden of cancer has been measured quite regularly for 20 years. In the past, few other Registres in the area have published their data, mainly through reports with a limited circulation outside their respective countries.

The picture has completely changed during recent years, reaching a total of nine areas (Fig. 1) for which data of good or acceptable quality are available from different sources: Cancer Incidence in Five Continents, articles in peer-reviewed journals, internet web-sites, or at least accurate reports also available in electronic format, and so obtainable via e-mail.[3–12]

With the aim of driving the attention of the readers on this novelty, we gathered available data from those registries to produce a picture of cancer incidence in North Africa, and compared that picture with the corresponding for Europe.[13]

Data for all the four Maghreb Mediterranean countries (Morocco, Algeria, Tunisia, Libya) and Egypt, now served by one or more Cancer Registries of medium or large size, are summarized in Tables 1a and 1b. The population coverage proportion varies from 5% for Egypt to 59% for Tunisia, reaching 13% when the whole region is considered. The fifth country of the Maghreb Union, Mauritania, is for the moment not covered by cancer registration.

Tables 1a and 1b also show, for comparison, data of the European Cancer Registries, made available in the last version of the open-access database of CI5C Vol. IX.[13] European data were pooled together and age-standardised rates were

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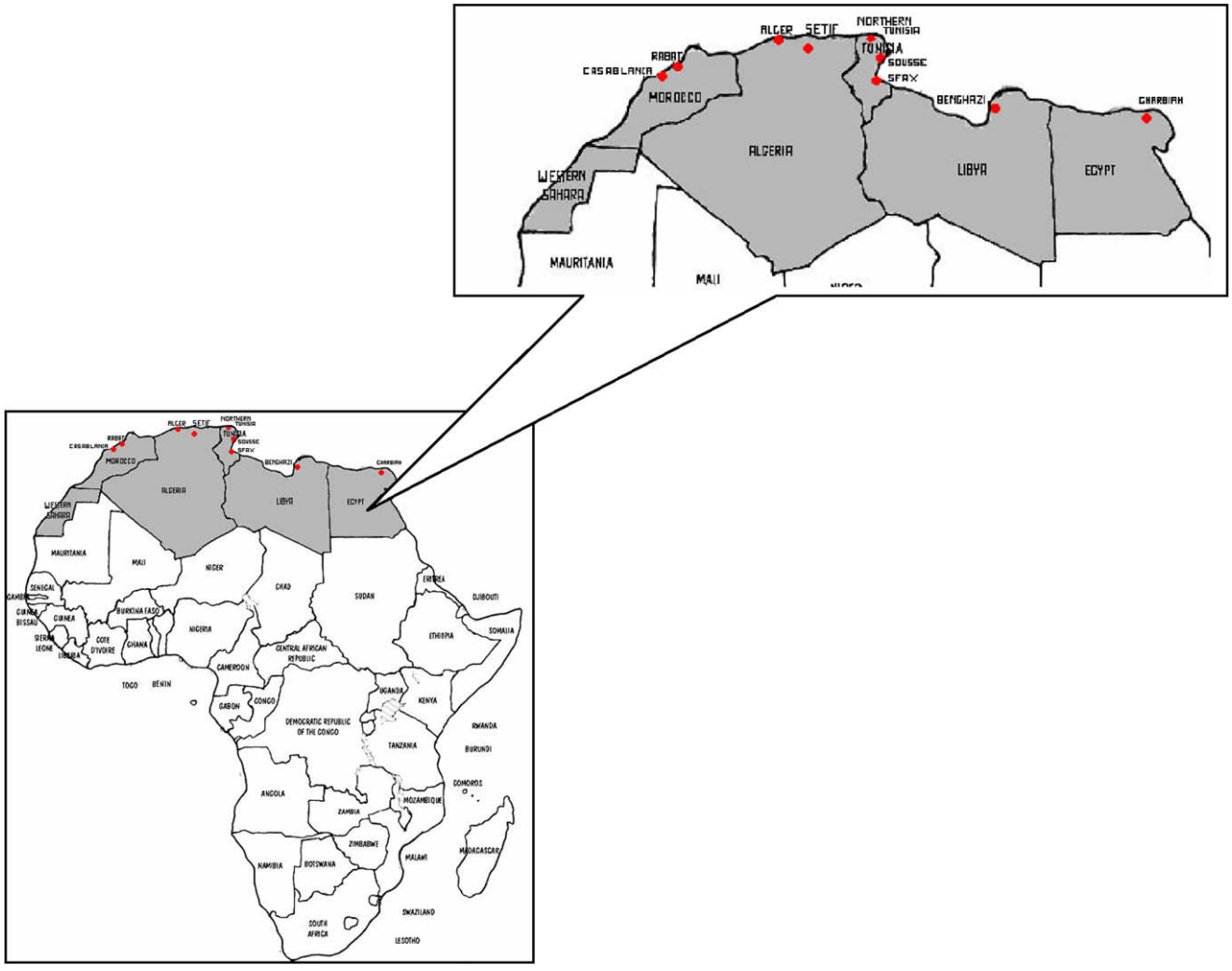

Fig. 1 – North Africa countries and their Cancer Registries.

calculated. For both North Africa and Europe we selected the following cancers: All Cancers (skin carcinoma excluded), Nasopharynx, Stomach, Colon, Rectum, Liver, and Non Hodgkin Lymphoma for both sexes; Larynx, Lung, Prostate and Bladder for men; Breast, Cervix Uteri, Ovary and Thyroid for women.

The pattern of cancer risk shown by these data appears quite peculiar. In every North Africa country, the whole incidence rate ranges, in both genders, between one third and one half of what is currently measured in Europe. For the whole incidence rate, the variations among these countries are far smaller than the difference between this group of countries and Europe.

The distribution of the different cancer sites among North Africa countries and registries is quite homogenous, with few exceptions, such as the high level of liver and bladder cancer incidence in the Garbiah male population, or that of breast cancer in Algiers women. Also remarkable are the East-West gradient for cervical cancer and the high rates of Non Hodgkin lymphomas in Egypt. As expected, rates of nasopharyngeal cancer were high in all the North Africa countries (but Egypt), compared to those observed in Europe.

In both sexes the most frequent cancers are approximately the same as those observed (or which used to be observed until recently) in Europe, with the only remarkable exception of colorectal cancers, which presents a very low frequency in North Africa. This pattern is completely different from what is known for Black Africa, where infection-related cancers are the most frequent.[1,13]

The four Maghreb countries and Egypt are quite comparable in their demographic, economic and socio-cultural aspects,[14] and, therefore, the similarities in cancer patterns are not surprising. They are coherent with what is known about the potential risk and protection factors distribution in the region: low industrialisation, traditional control of infectious diseases, Mediterranean diet, compliance with religious prohibitions (notably for alcohol, and, at a lesser extent, for tobacco), sexual and reproductive behaviours.

These data, in their respective publications, are almost always accompanied by the appropriate registration quality indicators, with the exception of mortality/incidence ratio and other mortality related indicators, that are unavailable since central mortality data are not provided for most of the North Africa countries. Others quality indicators (% of microscopic verifications, patterns by site and age, mix of

Table 1a – Incidence rates (per 100,000, age-standardised on world population) of selected cancers in North African Countries,[3–11] compared with the pool of European Registries.[13]

	Rabat (Morocco) 2005[3]	Casablanca (Morocco) 2004[4]	Sétif (Algeria) 1998–2002[5]	Algier (Algeria) 2006[6]	Northern Tunisia 1999–2003[7]	Sousse (Tunisia) 1998–2002[8]	Sfax (Tunisia) 2000–2002[9]	Benghazi (Libya) 2004[10]	Gharbiah (Egypt) 1999–2002[11]	Pool Europe 1998–2002[13]
Men										
Average annual population coverage	305,856	1,782,255	684,636	1,478,947	2,382,720	250,500	417,300	832,346	1,857,618	114,072,386
All sites but skin	128.6	100.3*	86.3	143.0	133.2*	146.1	123.7	126.8	156.1	295.2
Nasopharynx	3.4	3.7	5.4	3.7	3.4	4.6	3.8	4.0	1.2	0.5
Stomach	6.7	4.1	7.1	7.9	6.0	5.1	3.9	4.5	3.3	14.7
Colon	3.3	3.8	3.0	8.5	6.0	6.5	6.7	8.7	4.2	22.0
Rectum	3.9	2.8	3.6***	6.3	4.9**	5.1***	4.8***	5.5***	2.1***	16***
Liver	3.2	0.9	1.1	1.2	n.a	2.2	1.9	4.9	21.9	5.4
Larynx	4.7	5.6	2.8	6.3	6.7	5.7	4.6	5.3	4.2	6.4
Lung	25.9	25.5	19.9	24.2	30.2	37.1	24.6	26.7	14.0	50.0
Prostate	23.3	9.6	7.5	11.2	9.2	14.1	11.5	9.8	8.5	52.5
Bladder	11.3	5.8	4.5	16.7	12.9	19.0	16.9	12.6	27.9	20.5
NHL	7.2	6.1	5.3	n.a.	6.4	6.7	7.6	6.4	16.9	9.6

n.a. not available in the published sources.

* All sites including skin.

** Rectum, junction and anus.

*** Rectum and junction.

Table 1b – Incidence rates (per 100,000, age-standardised on world population) of selected cancers in North African Countries,[3–11] compared with the pool of European Registries.[13]

	Rabat (Morocco) 2005[3]	Casablanca (Morocco) 2004[4]	Sétif (Algeria) 1998–2002[5]	Algier (Algeria) 2006[6]	Northern Tunisia 1999–2003[7]	Sousse (Tunisia) 1998–2002[8]	Sfax (Tunisia) 2000–2002[9]	Benghazi (Libya) 2004[10]	Gharbiah (Egypt) 1999–2002[11]	Pool Europe 1998–2002[13]
Women										
Average annual population coverage	327,145	1,833,648	680,852	1,455,244	2,318,400	244,300	403,300	799,705	1,807,906	120,739,480
All sites but skin	109.3	104.2*	80.3	164.0	101.4*	95.5	89.1	102.4	119.3	227:1
Nasopharynx	1.9	0.9	1.7	1.8	1.6	1.9	0.9	1.4	0.4	0.2
Stomach	3.4	3.0	3.1	7.4	3.6	2.5	3.0	2.1	2.0	7.0
Colon	1.8	2.6	2.8	5.9	5.3	6.1	5.3	8.1	2.7	15.6
Rectum	2.8	3.1	3.8***	5.1	4.0**	2.9***	3.8***	4.1***	1.7***	8.4***
Liver	1.2	0.5	0.8	0.1	n.a	0.7	0.6	2.5	4.5	2.0
Breast	35.8	35.0	18.8	60.5	29.6	29.8	28.0	23.3	42.5	71.5
Cervix uteri	15.4	13.5	11.6	9.5	5.4	7.1	2.3	3.5	2.1	9.4
Ovary	5.2	5.1	2.1	7.3	3.8	3.3	3.7	3.9	5.1	10.8
Thyroid	4.6	4.8	3.6	8.6	3.7	3.1	3.0	3.9	2.6	5.1
NHL	3.2	4.6	3.8	n.a.	4.0	3.7	4.1	4.5	9.9	6.7

n.a. not available in the published sources.
* All sites including skin.
** Rectum, junction and anus.
*** Rectum and junction.

information sources) reached good or acceptable levels. Underdiagnosis seems to be unlikely, at least in urban affluent areas, such as Rabat city or Sousse. Underreporting and under-registration cannot be ruled out, but these potential sources of bias could hardly account for an effect large enough to attenuate the huge differences observed in comparison to Europe.

The establishment of Cancer Registries in the region was, in almost all the considered cases, a decision of the Ministry of Health or Local Health Authority. International cooperation (namely IARC, and to some extent the UICC and WHO-EMRO) has in many cases helped at the technical and scientific level, rather than directly providing resources.

The Garbiah Registry benefited (among other Middle East Registries) from the large efforts deployed by the US National Cancer Institute trough the Middle East Cancer Consortium Project,[15] and the Benghazi Registry benefited from the twinning with the Italian Modena Cancer Registry.

Conflict of interest statement

None declared.

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