

## Mini Symposium on CML

# Chronic myelogenous leukemia in Libya

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Libya is a North African country located at the coast of the Mediterranean Sea, having over 1000 km of coastline. It has a population of about 6.2 million with a vast desert area, and one of sparsest population per square kilometer. The country is rich in petroleum and natural gas resources. The average life of the population is relatively high, being over 75 years. The country has one of highest smoking ratio among the male population. Over 85% males smoke or have smoked for a long time period of their life. The population is equally distributed amongst the black and non-black.

The exact incidence of various tumors is difficult to ascertain as, earlier, there is no systematic organized population-based cancer registry. Between 1981 and 1985, 1124 patients with histopathologically-confirmed malignant disease were registered at the then sole oncology clinic of Libya in Tipoli.<sup>[1]</sup> Subsequently, information became available among patients in Eastern Libya from the Benghazi Cancer Registry whose first report of the 2003 data was published in 2007.<sup>[2]</sup> It reported a total of 997 cases of primary cancers among residents of Eastern Libya in 2003. The age-standardized incidence rate for all sites combined (except non-melanoma skin) was 118 per 100,000 for men and 95 per 100,000 for women. In 2004, this registry documented 56 new leukemia cases, of which 28% were CML.<sup>[3]</sup>

The African Oncology Institute is one of the biggest specialized center in North Africa. The average daily outpatient load is 70, and annual registration is over 1500 new cases. The data of this institute over a period of 10 years indicates that lung cancer is the commonest cancer

in males, and the highest incidence among women is breast cancer [Table 1].

The frequency of leukemias is almost equal amongst the genders, 5.8% in males, and 6.1% in female. Just over half (52%) of these are chronic leukemias. Among them, chronic myeloid leukemia (CML) forms the largest group (71%). The average age at diagnosis for CML patients is 57 years and is more common amongst the black population. The usual presentations are incidental finding, symptomatic splenomegaly, progressive and often symptomatic anemia, or recurrent infections. The commonest diagnostic tests are routine hematology and peripheral blood film examination. Bone marrow examination is done only in selected cases for molecular and cytogenetic evaluation. As a result, documented Philadelphia chromosome (Ph1) positivity is lower (79%) as compared to other regions in the World. Hence, diagnosis is often based on clinical features alone.

At diagnosis, about 80% cases are in chronic phase, 16% are in accelerated phase, and 4% are in transformation or blastic phase.

The treatment options employed for Libyan patients include hydroxyurea, interferon, busulfan, imitinab, and bone marrow transplantation (BMT). With hydroxyurea, we have a hematological response rate of around 74%. Patients who fail to achieve hematological remission or develop progressive diseases are switched over to interferon

**Table 1: Commonest cancers in males in females in Libya**

Male	(%)	Female	(%)
Lung and pleura	17.3	Breast	28.3
Colon and rectum	16.4	Colon and rectum	11.2
Prostate	11.6	Ovary	8.1
Lymphoma	7.9	Lymphoma	6.6
		Leukemia	6.1
U. Bladder	6.7	Lung	5.7
Larynx	5.9	Kidney	3.8
Leukemia	5.8	Nasopharyngeal Ca	3.7
Nasopharyngeal Ca	4.7	Gall bladder	1.9
Sarcoma	4.1	Cervix and Uterus	1.9
Brain	3.5	Skin tumors	1.4

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DOI:

10.4103/2278-330X.96500

or busulphan. Upfront use of imitinab is increasing and is restricted to patients with confirmed Ph1 positive disease. Younger eligible patients with available HLA-matched sibling donor are potential candidates for BMT. All the treatment is provided by the state free of charge including the marrow transplant, even if done outside Libya.

The reason for the higher frequency of CML among Libyans is unknown. Factors that need to be considered include an increasing life expectancy, Mediterranean coast location, use of benzene and its products, higher smoking ratio, and black population.

Two important challenges faced by oncologists and hematologists are the late presentation of CML patients and suboptimal treatment compliance. Factors that may contribute include low literacy rate, poor understanding of disease, lack of focus on health education, widely spread out population, non-availability of health care facility at the

door step and a tendency by patients to rely on traditional / herbal medications.

Addressing these challenges is a public health issue that needs proactive attention.

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**How to cite this article:** Mehdi I, Kashmiri AH. Chronic myelogenous leukemia in Libya. *South Asian J Cancer* 2012;1:25-6.  
**Source of Support:** Nil. **Conflict of Interest:** None declared.

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