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Platinum Priority – Review – Bladder Cancer

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Bladder Cancer Incidence and Mortality: A Global Overview and Recent Trends

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Abstract

Context: Bladder cancer has become a common cancer globally, with an estimated 430 000 new cases diagnosed in 2012.

Objective: We examine the most recent global bladder cancer incidence and mortality patterns and trends, the current understanding of the aetiology of the disease, and specific issues that may influence the registration and reporting of bladder cancer.

Evidence acquisition: Global bladder cancer incidence and mortality statistics are based on data from the International Agency for Research on Cancer and the World Health Organisation (Cancer Incidence in Five Continents, GLOBOCAN, and the World Health Organisation Mortality).

Evidence synthesis: Bladder cancer ranks as the ninth most frequently-diagnosed cancer worldwide, with the highest incidence rates observed in men in Southern and Western Europe, North America, as well in certain countries in Northern Africa or Western Asia. Incidence rates are consistently lower in women than men, although sex differences varied greatly between countries. Diverging incidence trends were also observed by sex in many countries, with stabilising or declining rates in men but some increasing trends seen for women. Bladder cancer ranks 13th in terms of deaths ranks, with mortality rates decreasing particularly in the most developed countries; the exceptions are countries undergoing rapid economic transition, including in Central and South America, some central, southern, and eastern European countries, and the Baltic countries.

Conclusions: The observed patterns and trends of bladder cancer incidence worldwide appear to reflect the prevalence of tobacco smoking, although infection with *Schistosoma haematobium* and other risk factors are major causes in selected populations. Differences in coding and registration practices need to be considered when comparing bladder cancer statistics geographically or over time.

Patient summary: The main risk factor for bladder cancer is tobacco smoking. The observed patterns and trends of bladder cancer incidence worldwide appear to reflect the prevalence of tobacco smoking.

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1. Introduction

Bladder cancer is the ninth most common cancer worldwide, with an estimated 430 000 new cases in 2012. More than 60% of all bladder cancer cases and half of all the 165 000 bladder cancer deaths occur in the less developed regions of the world. A strong male predominance is observed with three-quarters of all bladder cancer cases occurring in men [1].

While differences in the prevalence of tobacco smoking, the main risk factor for the disease [2,3], explain much of these geographical and sex disparities worldwide, infection with *Schistosoma haematobium* reflects the high burden of the disease in parts of Northern and sub-Saharan Africa [4]. Equally, the scale of bladder cancer incidence can be greatly affected by registration practices with respect to the inclusion of noninvasive bladder tumours and multiple tumours of the urinary tract, as part of routine reporting [5].

This paper provides an overview of the most recent bladder cancer incidence and mortality patterns and trends using the Cancer Incidence in Five Continents series (CI5),

GLOBOCAN, and World Health Organisation (WHO) Mortality databases held at the International Agency for Research on Cancer (IARC). We review the current understanding of the aetiology of the disease and the specific issues that govern registration and reporting of bladder cancer and how differences in such practices may impact the comparison of cancer incidence statistics.

2. Evidence acquisition

2.1. Data sources

Regional and national bladder cancer incidence data and corresponding populations were extracted from the CI5 series online [6]. CI5 is the main source of global cancer incidence data provided by population-based cancer registries worldwide. The quality of data submitted to CI5 is evaluated by a rigorous editorial process, ensuring that compiled datasets reach the highest levels of validity, completeness, and comparability [7]. Beginning over 50 yr ago, the latest (10th) volume presents data for the period

Table 1 – Estimated number of bladder cancer incident cases and deaths by region of the world in 2012 [1]

Area	Incidence					Mortality				
	Men		Women		M:F	Men		Women		M:F
	(n)	(ASR)	(n)	(ASR)		(n)	(ASR)	(n)	(ASR)	
World	330380	9.0	99413	2.2	4.1	123051	3.2	42033	0.9	3.6
By development level										
More developed regions	196077	16.9	57766	3.7	4.6	58914	4.5	21024	1.1	4.1
Less developed regions	134303	5.3	41647	1.5	3.5	64137	2.6	21009	0.7	3.7
By human development level										
Very high human development	183065	16.7	54713	3.9	4.3	51927	4.1	19760	1.1	3.7
High human development	56697	10.8	15596	2.2	4.9	24239	4.5	6588	0.8	5.6
Medium human development	79357	4.7	23748	1.2	3.9	39769	2.3	12226	0.6	3.8
Low human development	11096	3.1	5311	1.4	2.2	7065	2.1	3443	0.9	2.3
Africa	17685	6.3	6752	2.1	3.0	9362	3.5	3906	1.2	2.9
Eastern Africa	2824	3.3	1961	2.0	1.7	1819	2.2	1290	1.3	1.7
Sub-Saharan Africa	6460	3.0	4044	1.6	1.9	3873	1.9	2569	1.1	1.7
Middle Africa	610	2.2	441	1.3	1.7	420	1.6	300	0.9	1.8
Northern Africa	11225	15.1	2708	3.2	4.7	5489	7.6	1337	1.6	4.8
Southern Africa	1285	7.5	483	1.9	3.9	494	3.0	225	0.9	3.3
Western Africa	1741	2.1	1159	1.3	1.6	1140	1.5	754	0.9	1.7
Central and South America and Caribbean	17610	6.1	7234	2.0	3.1	7078	2.4	3069	0.8	3.0
Caribbean	1839	7.6	542	1.8	4.2	773	3.0	284	0.9	3.3
Central America	2327	3.4	1430	1.8	1.9	867	1.2	535	0.6	2.0
South America	13444	6.9	5262	2.1	3.3	5438	2.7	2250	0.9	3.0
North America	58089	19.5	18660	5.1	3.8	13285	4.0	5307	1.2	3.3
Asia	115646	5.5	32922	1.4	3.9	52816	2.5	16478	0.6	4.2
Eastern Asia	64662	5.8	20789	1.6	3.6	27271	2.3	10220	0.7	3.3
South-Eastern Asia	10784	4.3	3034	1.0	4.3	5352	2.2	1517	0.5	4.4
South-Central Asia	24415	3.6	6159	0.8	4.5	13413	2.0	3441	0.5	4.0
Western Asia	15785	19.0	2940	3.1	6.1	6780	8.4	1300	1.3	6.5
Europe	118365	17.7	32932	3.5	5.1	39522	5.2	12889	1.1	4.7
Central and Eastern Europe	30871	15.1	8904	2.7	5.6	13231	6.1	3543	0.9	6.8
Northern Europe	12722	12.4	4645	3.6	3.4	5174	4.4	2391	1.5	2.9
Southern Europe	34786	21.8	8049	3.8	5.7	11653	6.0	3001	1.0	6.0
Western Europe	39986	19.7	11334	4.3	4.6	9464	4.0	3954	1.1	3.6
Oceania	2985	10.6	913	2.7	3.9	988	3.2	384	1.0	3.2
Australia/New Zealand	2868	11.3	887	2.9	3.9	939	3.3	366	1.0	3.3
Melanesia	84	3.5	21	0.7	5.0	43	2.0	13	0.4	5.0
Micronesia/Polynesia	33	6.5	5	0.9	7.2	6	1.2	5	0.9	1.3

ASR = age-standardised rate.

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