

Geographic variation in primary liver and gallbladder cancer

NCIN Data Briefing

Background

Cancers of the liver and gallbladder are rare in the UK. Primary liver cancers arise in the liver and need to be distinguished from secondary cancers which have metastasised from elsewhere in the body. Known risk factors for primary liver cancer are infection with Hepatitis B and Hepatitis C as well as cirrhosis, excessive alcohol consumption, smoking and diabetes. Known risk factors for gallbladder cancer are gallstones, cholecystitis (inflammation of the gallbladder) and obesity.

KEY MESSAGE:

The incidence of liver cancer varies between cancer networks in England with the highest incidence evident in London and North West England. This geographical pattern warrants further investigation.

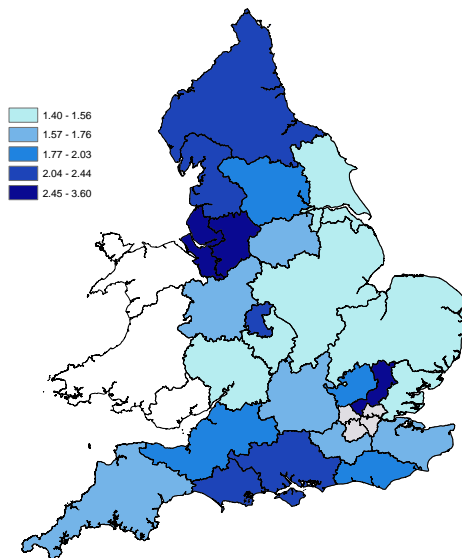


Figure 1: Map of age-standardised incidence rates of liver cancer (per 100,000 European standard population, ASR(E)) by cancer network, males and females, England, 1998-2006

Results

Liver

Higher incidence of liver cancer was evident in London and North West England (Figure 1). Funnel plots showed significantly higher incidence compared to the national average in Merseyside & Cheshire, Greater Manchester & Cheshire, West London, North East London and South East London cancer networks in both sexes and also in North London for males (Figure 2-3). Thames Valley and Anglia cancer networks had a significantly lower incidence in both males and females. In males, East Midlands, Kent & Medway, Peninsula, Essex, Humber & Yorkshire Coast, 3 Counties, Arden and North Trent cancer networks also had significantly lower incidence (Figures 2-3).

Gallbladder

There was no distinct geographical pattern in incidence of gallbladder cancer (data not shown). However, North East London cancer network had a significantly higher incidence of gallbladder cancer compared to the national average. Thames Valley (for males) and Essex (for females) cancer networks had a significantly lower incidence of gallbladder cancer.

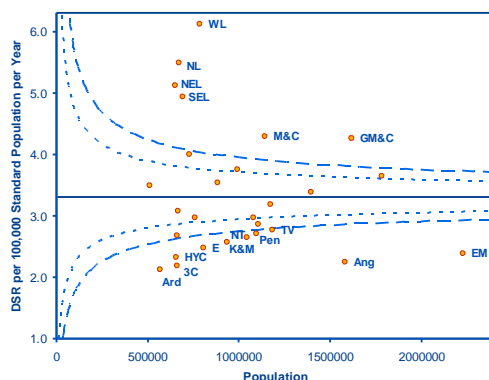


Figure 2: Funnel plot of ASR(E) of liver cancer by cancer network, males, England, 1998-2006.

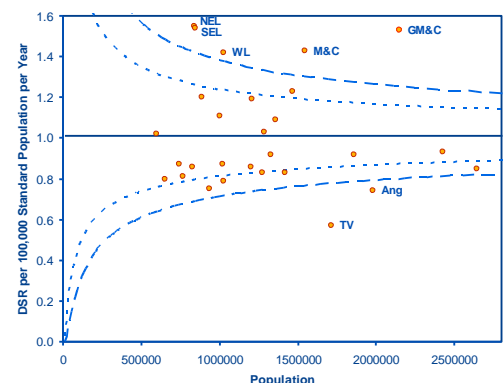


Figure 3: Funnel plot of ASR(E) of liver cancer by cancer network, females, England, 1998-2006.

3 C, 3 Counties, Ang, Anglia, Ard, Arden, EM, East Midlands, E Essex, GM&C, Greater Manchester & Cheshire, HYC, Humber & Yorkshire Coast, K&M, Kent & Medway, M&C, Merseyside & Cheshire, NEL, North East London, NL, North London, NT, North Trent, Pen, Peninsula, SEL, South East London, TV, Thames Valley, WL, West London.

Source of funnel plot software: Compendium of Clinical and Health Indicators, December 2007. © Crown Copyright.

Methods

Data on patients diagnosed with liver (excluding intrahepatic bile duct) cancer (International Classification of Diseases (ICD10) C22.0, C22.2-C22.9) and gallbladder cancer (ICD10 C23) in England between 1998 and 2006 were extracted from the National Cancer Repository Dataset. The dataset comprised 11,598 patients with liver cancer and 3,824 patients with gallbladder cancer (Table 2).

Cancer site	ICD10 code	Males		Females		Total
		N	(%)	N	(%)	N
Gallbladder	C23	1,116	(29.2)	2,708	(70.8)	3,824
Liver	C22.0, C22.2 - C22.9	8,320	(71.7)	3,278	(28.3)	11,598

Table 2: Number of cases (%) of gallbladder and liver cancer, males and females, England, 1998-2006

Age-standardised incidence rates (per 100,000 European standard population, ASR(E)), were calculated by sex and cancer network of residence. Incidence rates were displayed on maps and in funnel plots to assess variation in incidence between cancer networks. The funnel plots were produced using software available from the Eastern Region Public Health Observatory (ERPHO; <http://www.erpho.org.uk/viewResource.aspx?id=12476>)

Final note

There is some geographical variation in the incidence of liver cancer in England with particularly high incidence in London cancer networks and also in Merseyside, Manchester and Cheshire. In 2006-07 hospital admissions with a primary diagnosis for diseases specifically related to alcohol were higher in North West, North East and London. This could indicate more excessive alcohol consumption in these areas and could, in part, explain the geographical variation in liver cancer observed in this data briefing. Additionally, Hepatitis C is more common in people of Pakistani Punjab descent and Hepatitis B is more common in the Pakistani and Bangladeshi population. The higher incidence of liver cancer in London and the North West may also be associated with the ethnicity of the population living in these areas and the increased risk of infection with Hepatitis B and C. Further investigation however is needed to explain the geographical variation in incidence.

The incidence of gallbladder cancer is higher in females compared to males. One of the main risk factors for gallbladder cancer is a history of gallstones and inflammation of the gallbladder. Gallstones are more common in women, which may explain the higher incidence of cancer in females. Gallbladder cancer is also common in people originating from the Gangetic plains (North India and Bangladesh). The high incidence of gallbladder cancer in North East London may also be related to the high proportion of the Bangladeshi population living in this area.

FIND OUT MORE:

Thames Cancer Registry

Thames Cancer Registry is the lead Cancer Registry for upper gastrointestinal cancers

<http://www.tcr.org.uk>

Other useful resources within the NCIN partnership:

Cancer Research UK CancerStats – Key facts and detailed statistics for health professionals

<http://info.cancerresearchuk.org/cancerstats/>

The National Cancer Intelligence Network is a UK-wide initiative, working to drive improvements in standards of cancer care and clinical outcomes by improving and using the information collected about cancer patients for analysis, publication and research. Sitting within the National Cancer Research Institute (NCRI), the NCIN works closely with cancer services in England, Scotland, Wales and Northern Ireland. In England, the NCIN is part of the National Cancer Programme.