A sentinel case series of cancer patients with occupational exposures to electromagnetic non-ionizing radiation and other agents

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Eur. J. Oncol., vol. 16, n. 1, pp. 21-54, 2011

Brain Ca. Distribution

3 glioblastoma, 2 astrocytomas and 1 meningioma

Civilian:
Adenocarcinoma of left large cell carcinoma- age 58 - female
Astrosytoma - age 5 – male
Meningioma - age 55- male

Military:
Migraine - age 40 – male
Anaplastic ependymomas - age 31 - female
RCC - age 41 - male
Large b cell lymphoma - age 58 - male (ELF only)
Glioblastoma - age 37 - male
Papilary thyroid - age 19 - male
Epilepsy - age 19 - male
Electricity company:
Invasive duct carcinoma Lf. Breast carcinoma -age 51 -male
Relapsed IgG Lambda Multiple Myeloma - age 56 – male
Malignant lymphoma, lymphoblastic (T) - age 38 – female
EHS
Age range: 30-60
6 females , 2 males

A puzzling case

- **Age: 18**
- **Exposure: ELF + RFMW**
- **Latency: 6 weeks**
- **Electromagnetic radiation as a promoter/trigger for pre-existing latent situation?**

Brain Cancer with Induction Periods of Less Than 10 Years in Young Military Radar Workers

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ABSTRACT. The authors have reported on 5 young patients who had brain tumors that appeared within 10 yr of initial occupational exposures to radar. Four of the patients were less than 30 yr of age when the diagnoses were initially made. Brief induction periods that follow high exposures in individual sentinel patients are a recognized indicator of impending group risk, and these periods call attention to the need for precautionary measures. Similarly, reports of short induction periods for brain cancer on the side of the head in which there has been prior use of cell phones may also indicate increased risk.
<Key words: brain cancer, radar, short induction periods>

Archives of Environmental Health
July/August 2002 [Vol. 57 (No. 4)]

Medical Hypotheses (2002) 59(6), 703–705

Cellular telephones and effects on the brain: The head as an antenna and brain tissue as a radio receiver

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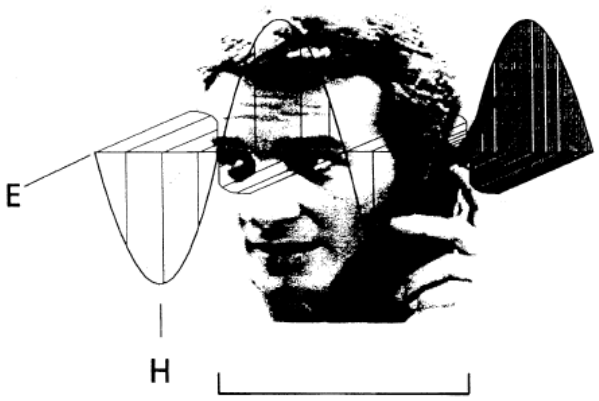
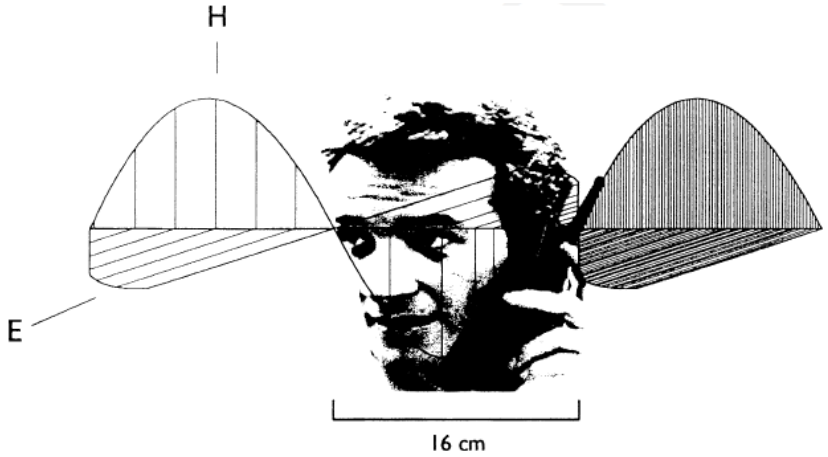
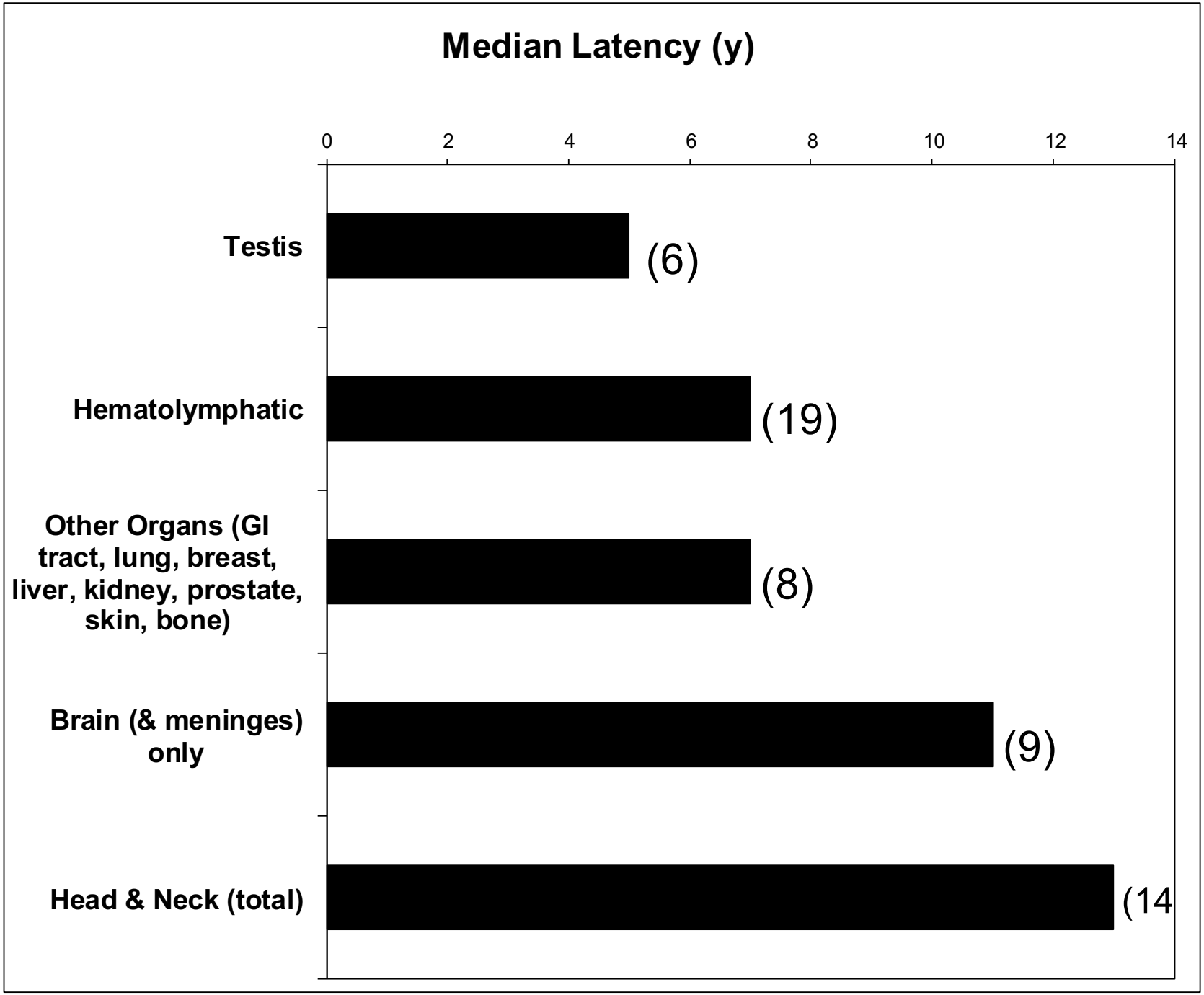


Frequency = 1800 MHz



Frequency = 900 MHz


Median Latency (y)
0
2
4
6
8
10
12
14
Testis
(6)
Hematolymphatic
(19)
Other Organs (GI tract, lung, breast, liver, kidney, prostate, skin, bone)
(8)
Brain (& meninges) only
(9)
Head & Neck (total)
(14

Szmigielski 2001

Eur J Oncol 6(2): 193-199

Table 3 - Cancer morbidity in Polish career military personnel exposed occupationally to radiofrequency and microwave radiation - a 20 year analysis (1971 - 1990): localization of neoplasms

Site	Non-exposed		Exposed		Ex/non-ex ratio	p
	No.	Rate	No.	Rate		
Oral cavity	82	3.39	3	3.88	1.14	
Pharynx	71	2.94	2	2.59	0.88	
Oesophagus/stomach	341	14.13	21	27.20	1.92	<0.05
Colon-rectum	249	10.32	14	18.13	1.76	<0.05
Liver/pancreas	73	3.02	3	3.88	1.28	
Larynx/lungs	724	30.01	27	34.97	1.16	
Bones	53	2.19	2	2.59	1.18	
Skin/melanoma	106	4.39	7	9.07	2.07	<0.05
Kidney/prostate	146	6.05	6	7.77	1.28	
Nervous system/brain	81	3.36	7	9.07	2.70	<0.01
Thyroid	51	2.11	2	2.59	1.23	
Haematologic and lymphatic	211	8.74	36	46.63	5.33	<0.01
Other	167	6.92	8	10.36	1.49	
All sites	2355	97.61	138	178.75	1.83	<0.01

Multiple primaries

Spratt et al. 1966

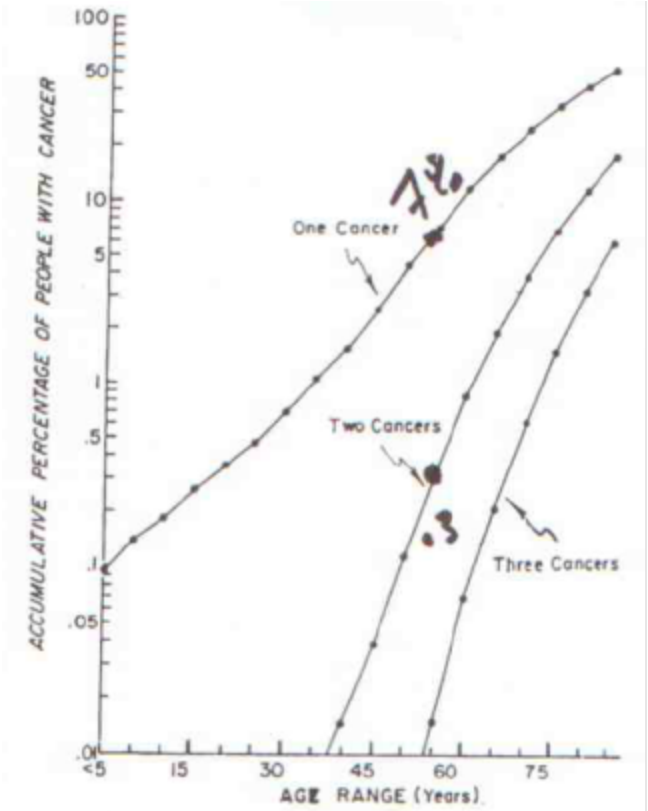


FIG. 1. These three lines plot the accumulative affliction of an ideal cohort of 100,000 men having no deaths over 90 years of life with first, second and third primary cancers occurring at the reported age-specific incidence of cancer among men in Connecticut (1949–1951).

Conclusions

Case for cause - effect relationship supported by:

1. Prior knowledge – animal and epi studies
2. Coherent relationship between tumor types and latencies
3. Multiple primaries in many patients (6 of 47)
4. Similar proportional distribution for tumors in our case series compared to Szmigielski

So What?

1. Better prevention and protection
2. Go from precaution to prevention/protection