

Major upper extremity amputation in Denmark

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Upper extremity amputations in Denmark between 1978 and 1983 comprised 3 percent of all major amputations. Trauma was the main reason for upper extremity amputations.

We report a nationwide survey of the incidence, geographic distribution, etiology, and level of upper extremity amputation in Denmark between 1978 and 1983.

Patients and methods

Since 1976, the Danish State Board of Health has recorded all hospital admissions in the country. The individual patient records are fed into the computerized National Patient Register. Since 1972, the Danish Amputation Register has collected data on extremity amputations (except fingers and toes; Ebskov 1977, 1986). In recent years the Danish Amputation Register has had access to records from the National Patient Register. From 1978, the registration was valid for upper extremity amputations. For comparison of upper with lower extremity amputations, we utilized data from 1981.

To estimate the annual age-specific incidence, we determined the mean number of upper extremity amputations in different age-groups for the period 1978 to 1983. This was related to the number of individuals in the different age-groups in the same period.

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Results

During the period from 1978 to 1983, a total of 470 upper extremity amputations were performed in 457 patients – 133 women and 324 men. The annual incidence was 15 amputations per million population. Twelve patients were amputated twice and 1 patient was amputated three times. The majority of the patients were between 20 and 65 years of age. In both sexes the risk of an upper extremity amputation increased with age (Table 1). Almost half of the upper extremity amputations were due to trauma and one fifth to a malignant tumor.

The average annual number of upper extremity amputations was 75 (60–82) as compared with 2,164 lower extremity amputations in 1981 (Table 2).

The transmetacarpal and carpal levels were the most common ones. The most proximal amputations, shoulder disarticulations, and forequarter amputations were mainly indicated by malignant tumors and vascular disorders.

Table 1. Upper extremity amputations in Denmark 1978–1983 (N 457)

Age	Annual age-specific incidence per 10 ⁶	
	Females	Males
0–19	2.5	2.9
10–19	5.6	9.5
20–29	4.1	26
30–39	4.3	22
40–49	9.8	26
50–59	13	26
60–69	11	35
70–79	19	32
80–89	23	32
90–	51	60

Table 2. Amputations in Denmark

Diagnosis	Upper extremity						Lower extremity					
	A	B	C	D	E	F	G	H	I	J	K	L
Vascular disease	19	13	0	16	1	2	59	476	38	719	4	0
Vascular disease ^a	7	7	4	36	3	1	10	30	5	38	1	0
Tumor	18	11	0	24	15	16	4	5	1	19	9	6
Congenital	6	0	0	1	1	1	4	0	0	1	0	0
Infection	15	3	0	1	0	0	13	20	3	20	6	0
Miscellaneous	42	4	3	2	5	1	11	26	5	54	0	0

Upper extremity 1978-83, lower 1981.
^a Diabetes mellitus.
A hand, B lower arm, C elbow, D upper arm, E shoulder, F forequarter, G foot, H below knee, I knee, J above knee, K hip, L hemipelvectomy.

Discussion

Baumgartner (1981) found that more than 90 percent of all upper extremity amputations in Switzerland were caused by trauma. However, the statistics were based on accident insurance records, possibly entailing a bias. Whereas trauma

is covered by such insurances, this does not hold true for the majority of the other conditions necessitating upper extremity amputation. The collection of data in the present study does not entail this error; consequently, our data provides a more reliable epidemiologic picture of upper extremity amputations.

References

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