

Prevalence of Neoplasms in patients with Primary Aldosteronism

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Context: Primary aldosteronism (PA) is the most common cause of secondary hypertension. In vitro, aldosterone excess can cause oxidative stress leading to DNA damage. Single case reports describe a coincidence of PA with renal cell carcinoma and other tumors. However, no data on the prevalence of benign and malignant neoplasms in patients with PA exists.

Methods: In the multicentre MEPHISTO study the prevalence of benign and malignant tumors was investigated in 338 patients both pro- and retrospectively. The SHIP cohort of patients with essential hypertension served as a matched control group.

Neoplasms in PA patients

benign	98 (61,6%)
endocrine tissue	37 (38%)
prostate	21 (21%)
skin	6 (6%)
gynaecologic	11 (11%)
others	23 (23%)
malignant	39 (24,5%)
urinary tract	11 (28%)
renal cell carcinoma	5 (13%)
prostate cancer	6 (15%)
skin	8 (21%)
gynaecologic	6 (15%)
others	14 (36%)
unknown dignity	22 (13,8%)

- **338** patients with confirmed primary aldosteronism (PA)
 - n = 199 (59%)
 - n = 139 (41%)
- **total neoplasms n = 159**

Benign endocrine neoplasms in PA patients



→ **positive correlation between Aldosterone levels and lifetime prevalence of malignancies**

SHIP-1 as a matched control group

- **335** MEPHISTO patients
3 patients < 27 yr excluded)
- Hypertensive control group → 1:1 matching for age and sex

	MEPHISTO	SHIP-1	P
Patients with cancer	32	20	0.08
Renal cell carcinoma	5	0	
Thyroid cancer	3	1	
BMI (kg/m ²)	28.1	28.5	0.28
active smokers (n)	50	72	

Comparison of Aldosterone levels at diagnosis of PA

Aldosterone (ng/l)	Individuals with malignancies	Individuals without malignancies	p-value
Primary aldosteronism	350 (244.5 - 509.5)	239.2 (151.3 - 379.6)	0.009
Controls (SHIP-1)	56.5 (32.5 - 71)	42.0 (28.0 - 65.0)	0.17

Renal cell carcinoma (RCC) in PA patients

- RKI cancer registry (2006): **3.3 – 4.4 %** of all malignancies
- **MEPHISTO:** **13 %** of all malignancies



Literature research:

- **16 – 44 %** presence of **renal cysts** in PA patients
- **acquired renal cysts** are independently associated with RCC

→ **MEPHISTO: 5 RCC**

- **80 %**
- **80% unilateral disease**
- **all hypokalemic at diagnosis of PA**
- **1 tumor incidentally discovered**
- **80 % with history of renal cysts**

→ **highest aldosterone levels !**

Discussion: In this cohort of PA patients a trend towards an increased lifetime prevalence for malignancies was observed. Formation of malignancies correlated significantly with baseline aldosterone levels, which was particularly obvious for renal cell carcinomas. Increased prevalence for renal cell carcinomas with renal cysts as possible predisposition will have to be confirmed and further investigated.



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