

# Influence of occupational risk factors on the development of renal cell carcinoma in the Saar-Pfalz region



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## Introduction

Associations between the development of renal cell carcinoma and occupational risk factors in the Saar- Pfalz region?

- Benzoapyrene (polycyclic aromatic hydrocarbon, mainly in hypoxic burning of organic material)?
- Trichlorethylene "TRI" (solution agent)?

## Materials and Methods

Retrospective case-control study (1995-1997)

n = 249 patients with renal cell carcinoma, of whom 42 patients were randomly selected

→ **Case:** n = 42 patients with renal cell carcinoma

→ **Control:** n = 42 patients with urolithiasis

- matched in age, sex and home town
- exclusion of renal cell carcinoma in the control group by ultrasound

→ Data from structured interviews focusing on the following issues:

- general medical history
- family medical history
- occupational history (including all jobs with a minimum employment of one year)

→ Estimation of the individual risk by an expert-rating:

- for polycyclic aromatic hydrocarbons: „BK- Report: BaP- Jahre“ (HVBG, 02/99)
- for trichlorethylene: according to the publication of Vamvakas<sub>1</sub>

→ Included as confounders: all factors that altered the odds ratio more than 10 %:

- BMI (body- mass- index)
- daily fluid intake
- exposure with other agents
- medication
- associated diseases

→ Results were gained by logistic regression and adjustment of age, sex and nicotine consumption.

(exclusion of female patients because of limited sample size)

## Results

→ **Significant risk factors** are:

- daily fluid intake < 1 liter (p=0.02)
- smoking (p=0.03)

→ **Risk increasing factors** are:

- high blood pressure > 15 years
- trichlorethylene in rising doses and time of exposure
- polycyclic aromatic hydrocarbon exposure in combination with further risk factors
- exposure with agents of the metal- working industry and with building materials > 30 years

→ **No correlation** between renal cell carcinoma an alcohol, diabetes mellitus, obesity and cardiovascular risk factors

## Conclusion

Male smokers in Saar- Pfalz region with a small daily fluid intake have a significant increased risk for the development of renal cell carcinoma.

The exposure with trichlorethylene is a risk factor.

<sup>1</sup>) Vamvakas, S. et al., „Renal cell cancer correlated with occupational exposure to trichloroethene“, J.Cancer Res. Clin. Oncol. 124, 374-82, 1998