WP6

Risk factors for multimorbidity

- 10-year follow-up of population-based cohorts

CHRODIS
ADDRESSING CHRONIC DISEASES & HEALTHY AGEING ACROSS THE LIFE CYCLE

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Research questions

- Does baseline multimorbidity predict hospitalization, medication use, morbidity and mortality during 10-year follow-up?

- Which characteristics predict the development of multimorbidity during follow-up (among initially non-multimorbid people)?

  - Among people without baseline diseases
  - Among people with 1 baseline disease

Data set

- **Finrisk** national survey cohorts 1982-2002
  - random population sample, study completed every 5 years
  - **n: 16 996 men, 18 664 women**
  - Age 25-64 years at baseline
  - Risk factors: BMI, smoking, serum cholesterol, blood pressure, diet (consumption of fruit and vegetables), physical activity, SES (education) measured at the baseline survey
  - Confounders: age, area, cohort
- 10-year follow-up using **hospital register data**
  - Diseases: diabetes, CVD, asthma/COPD, cancer, rheumatoid arthritis

Number of chronic diseases at baseline vs. mortality and morbidity

	n	%	Died during FU, %		Hospital days during FU	
Men				**Age-adj.**		**Age-adj.**
No diseases	14923	87,8	5,7	6,7	13	14
1 disease	1831	10,8	17,5	13,4	37	32
2 or more diseases	242	1,4	**33,1**	**21,7**	**54**	**45**
Women						
No diseases	16284	87,3	2,1	2,4	14	15
1 disease	2181	11,7	7,2	5,4	29	27
2 or more diseases	199	1,1	**17,6**	**10,6**	**60**	**57**

Baseline risk factors vs. development of MM

among initially healthy people

		Men			Women		
		Univariate HR	**p**	**Multivariate HR**	**Univariate HR**	**p**	**Multivariate HR**
Smoking	yes vs.no	2.6	<0.001	2.7	2.7	<0.001	2.6
BMI	per unit increase	1.1	<0.001	1.1	1.1	<0.001	1.09
S-chol	per unit increase	1.2	0.0004	ns	1.1	0.08	ns
Syst Bp	per 10 units increase	1.2	<0.001	1.1	1.1	0.028	ns
Education	low vs. high	1.6	0.0035	1.4	1.9	0.0014	ns
Physical activity	low vs. high	2.0	0.0005	ns	2.0	0.017	ns
Fruit&veg	low vs. high	1.4	0.0093	ns	1.5	0.0083	ns

Baseline DM → development of MM

		Men			Women		
		Univariate HR	p	Multivariate HR	Univariate HR	p	Multivariate HR
Smoking	yes vs. no	1.7	0.0019	1.7	2.1	0.0007	2.2
BMI	cut-off = 27	ns		1.7	1.7	0.0097	1.7
S-chol	cut-off = 5	ns		ns			ns
Blood pressure	cut-off = 140/90	1.4	0.0408	1.6	ns		ns
Education	low vs. high	ns		ns	ns		ns
Physical activity	low vs. high	ns		ns	ns		ns
Fruit&veg	low vs. high	ns		ns	ns		ns

Baseline CVD → development of MM

		Men + women		
		Univariate HR	p	Multivariate HR
Smoking	yes vs. no	1.5	0.053	ns
BMI	cut-off = 27	ns		ns
S-chol	cut-off = 5	ns		ns
Blood pressure	cut-off = 140/90	ns		ns
Education	low vs. high	ns		ns
Physical activity	low vs. high	ns		ns
Fruit&veg	low vs. high	1.8	0.0033	1.8

Conclusions

- Baseline MM is strongly associated with mortality and days spent in hospital during 10-year follow-up →**prevention of the 2nd disease might have a large impact on premature mortality and cost of treatment**
- Important risk factors for MM include smoking, high BMI, high blood pressure and low education
- Among people with diabetes, factors increasing the risk of MM include smoking, BMI, and hypertension
- Among people with CVD, factors increasing the risk of MM include smoking and low fruit and vegetable consumption
- **More attention should be paid on these modifiable risk factors of MM**

The Joint Action on Chronic Diseases and promoting healthy ageing across the life cycle (JA CHRODIS)*

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