pendent on a specific phagocyte subtype that remains to be identified [9].

To date, available data suggest that USPIO-enhanced MRI is a relevant surrogate marker of neuroinflammation in experimental models. Further understanding of inflammatory processes and improvement of contrast agents targeting neuroinflammation are needed before effective clinical applications.

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The Relationship between Socioeconomic Deprivation, Atypical Respiratory Infections and Survival Outcome in Elderly Stroke and Medical Patients

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Introduction

Socioeconomic deprivation [1–9] (SED) and infections [10–11] are potentially important stroke risk factors. For the first time, we investigated the relationship between SED, atypical respiratory infections and survival outcome in elderly stroke/transient ischaemic attack (TIA) and control medical patients.

Methods

We have reported the seroprevalences of the atypical respiratory pathogens *Chlamydia pneumoniae*, *Mycoplasma pneumoniae*, *Legionella pneumophila* and their association with stroke (90 cases) or TIA (10 cases) versus 87 control medical patients in the C-PEPS, M-PEPS and L-PEPS case-control studies [cf. ref. 11]. The subjects in these studies were Caucasians aged over 65 years recruited prospectively during the period 20 December 1999 until 31 March 2000 in London, England. The controls were admitted with medical conditions categorised as: gastrointestinal (n = 40), musculoskeletal pain/immobility/falls (n = 20), haematological (n = 12), neurological/psychiatric (n = 11) and renal/metabolic disturbances (n = 4).

Within the same cohort, we studied the SED of 92 ischaemic cases and 87 controls using the Index of Multiple Deprivation (IMD) and the Income Deprivation Affecting Older People Index (IDAOPI) deprivation scores [12]. Patients' socioeconomic status was determined from their postcode areas of residence. Patients' survival was determined from health records after 6 years of follow-up terminating on 31 March 2006.

Results and Discussion

The mean IMD scores of cases and controls were 23.3 and 25.0, respectively (p = 0.29), whereas the mean IDAOPI scores of cases and controls were 0.19 and 0.21, respectively (p = 0.22).

In the controls, but not the cases, there was a statistical difference in the mean IMD (p = 0.02) and IDAOPI (p = 0.005) scores between patients seropositive and seronegative for IgM, but not for IgG. This suggested that acute atypical respiratory infection could be associated with SED in the controls.

There was an association between number of pathogens (IgM but not IgG) and IDAOPI scores (p = 0.004), suggesting that acute infection of multiple atypical respiratory pathogens was significantly and specifically associated with income deprivation, in both the elderly stroke/TIA cases and medical controls.

The odds ratios (ORs) for stroke/TIA in relation to IgG seropositivity for atypical respiratory infections have been published

Table 1. The effect of IMD and IDAOPI deprivation scores on the ORs for stroke/TIA in relation to IgG seropositivity for n = 0, 1, 2 or 3 of *C. pneumoniae*, *M. pneumoniae* and *L. pneumophila*

Pathogens IgG (n)	Cases	Con- trols	Unadjusted	Adjusted ¹	Adjusted ²	Adjusted ³	Adjusted ⁴
0	8	16	1	1	1	1	1
1	30	21	2.86 (1.03–7.89)	2.74 (0.98–7.63)	2.78 (1.00–7.69)	3.48 (1.00–12.05)	3.68 (1.07–12.66)
2	39	42	1.86 (0.72–4.82)	1.84 (0.71–4.78)	1.86 (0.72–4.85)	1.89 (0.60–5.92)	1.98 (0.64–6.13)
3	11	3	7.33 (1.58–33.97)	7.25 (1.56–33.3)	7.14 (1.53–33.3)	6.49 (1.17–35.7)	6.45 (1.17–35.7)
All	88	82	p = 0.04	p = 0.052	p = 0.054	p = 0.09	p = 0.08
p value for trend across ORs			p = 0.10			p = 0.23	p = 0.22

¹ For IMD. ² For IDAOPI. ³ For IMD, age, sex, hypertension, diabetes mellitus, smoking, ischaemic heart disease and ischaemic ECG. ⁴ For IDAOPI, age, sex, hypertension, diabetes mellitus, smoking, ischaemic heart disease and ischaemic ECG.

previously [11]. In this study, we adjusted the ORs for IMD and IDAOPI. As shown in table 1, the association was significant ($p = 0.04$) before adjustment, and close to significance after adjusting for IMD ($p = 0.052$) and IDAOPI ($p = 0.054$). The association became less significant after adjusting for IMD or IDAOPI, age, sex, hypertension, diabetes mellitus, smoking, ischaemic heart disease and ischaemic ECG ($p = 0.09$ for IMD, 0.08 for IDAOPI).

The median age of cases and controls were 80 and 82 years, respectively. After 6 years, 69/92 (75%) cases (median survival = 22.4 months) and 68/87 (78%) controls (median survival = 36.5 months) had died. There was no significant difference between the Kaplan-Meier survival curves between the groups as divided into tertiles of IMD and IDAOPI deprivation scores, in either the cases or controls.

Conclusions

We concluded that the SED status of elderly stroke/TIA and medical patients was similar on admission. SED did not affect their survival outcome. Acute atypical respiratory infectious burden was associated with income deprivation in elderly stroke/TIA and medical patients. SED on its own had only a modest effect on the association between chronic atypical respiratory infectious burden and elderly stroke/TIA patients.

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