**Online Repository material**

**Online Repository Table E1: Overlap between aeroallergen sensitisation, food allergy and food allergen sensitisation**

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| --- | --- | --- | --- |
|  | No Aeroallergen sensitisation at age 4(N=810) | Aeroallergen sensitisation at age 4(N=170) | **P value** |
| Food allergen sensitisation at age 1 or 2\* | 20% (13/65) | 65.1% (28/43) | <0.001 |
| Food allergen sensitisation at age 4 | 0.2% (2/810) | 17.1% (29/170) | <0.001 |
| Food allergy at age 1 or 2 | 6.2% (48/772) | 19.8% (32/162) | <0.001 |
| Food allergy at age 4 | 4.1% (33/809) | 14.1% (24/170) | <0.001 |
|  | No Aeroallergen sensitisation at age 10(N=759) | Aeroallergen sensitisation at age 10(N=276) | P value |
| Food allergen sensitisation at age 1 or 2\* | 23% (14/61) | 55.8% (29/52) | <0.001 |
| Food allergen sensitisation at age 4 | 0.7% (4/596) | 10.6% (24/226) | <0.001 |
| Food allergen sensitisation at age 10 | 0.3% (2/759) | 16.3% (45/276) | <0.001 |
| Food allergy at age 1 or 2 | 6.5% (46/707) | 14.6% (37/254) | <0.001 |
| Food allergy at age 4 | 4.3% (29/681) | 10.2% (26/254) | 0.001 |
| Food allergy at age 10 | 2.7% (18/676) | 2.9% (7/244) | 0.855 |

Chi-squared tests or Fishers exact tests were performed to assess for associations. \*SPT was only performed at ages 1 or 2 when clinically indicated.

**Online Repository Table E2- The associations between food allergy/food allergen sensitisation and Atopic asthma**

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| --- | --- | --- |
|  | Atopic asthma at 18 years | Atopic asthma at 26 years |
| aOR [95% CI] | Number of cases included in model | aOR [95% CI] | Number of cases included in model |
| FA at 1 or 2 years | 1.51 (0.73-3.13)P=0.268 | 601 | **2.41 (1.14-5.08)P=0.021** | 496 |
| FA at 4 years | 1.92 (0.72-5.11)P=0.193 | 633 | **3.45 (1.02-8.43)P=0.007** | 474 |
| FA at 10 years | 1.41 (0.38-5.21)P=0.604 | 545 | 1.08 (0.23-5.00) P=0.921 | 446 |
| FAS in symptomatic infants at 1 or 2 years | **5.02 (1.23-20.52)P=0.025** | 72 | **5.28 (1.47-18.61)P=0.011** | 60 |
| FAS at 4 years | **5.69 (1.84-17.56)P=0.002** | 559 | **6.03 (1.86-19.59)P=0.003** | 421 |
| FAS at 10 years | **6.83 (3.10-15.05)P<0.001** | 567 | **7.35 (3.00-17.97)P<0.001** | 460 |
| Co-variates included in the model | Family history of asthma, Family history of rhinitis, Family history of eczema, Cord IgE, eczema at corresponding age time point | Family history of asthma , eczema at corresponding age  |

FA: Food allergy, FAS: Food allergen sensitisation. aOR;95 CI= adjusted odds ratio (95% confidence interval). Family history: Paternal, Maternal or Sibling history of disease. Cord IgE= Cord immunoglobulin E, a dichotomous variable based on a cut-off of ≥0.5kU/L. Eczema at corresponding age: met the study definition of eczema at the corresponding age time point. Atopic asthma were defined as meeting study criteria for asthma alongside positive aeroallergen sensitisation at the time-point of diagnosis. Logistic regression modelling was performed and co-variates were selected based on a significance level of 0.1 at univariate analyses.

**Online Repository Table E3- The associations between food allergy/food allergen sensitisation and Atopic rhinitis**

|  |  |  |
| --- | --- | --- |
|  | Atopic rhinitis at 18 years | Atopic rhinitis at 26 years |
| aOR [95% CI] | Number of cases included in model | aOR [95% CI] | Number of cases included in model |
| FA at 1 or 2 years | 0.92 (0.48-1.74)P=0.787 |  564 | 1.32 (0.69-2.55)P=0.404 | 435 |
| FA at 4 years | 0.67 (0.27-1.66)P=0.384 | 594 | 0.99 (0.42-2.31)P=0.972 | 405 |
| FA at 10 years | 0.88 (0.30-2.58)P=0.813 |  513 | 0.70 (0.22-2.28)P=0.556 | 407 |
| FAS in symptomatic infants at 1 or 2 years | 1.66 (0.57-4.87)P=0.353 | 69 | 1.57 (0.48-5.14)P=0.457 | 53 |
| FAS at 4 years | **5.21 (1.59-17.08)P=0.006** | 522 | **3.25 (1.04-10.17)P=0.043** | 367 |
| FAS at 10 years | **21.92 (6.50-73.87)P<0.001** | 534 | **4.27 (1.71-10.70)P=0.002** | 403 |
| Co-variates included in the model | Family history of asthma, Family history of rhinitis, Cord IgE, eczema at corresponding age  | Family history of asthma, Family history of rhinitis, Family history of eczema, Family history of food allergy |

FA: Food allergy, FAS: Food allergen sensitisation. aOR;95 CI= adjusted odds ratio (95% confidence interval). Family history: Paternal, Maternal or Sibling history of disease. Cord IgE= Cord immunoglobulin E, a dichotomous variable based on a cut-off of ≥0.5kU/L. Eczema at corresponding age: met the study definition of eczema at the corresponding age time point. Atopic rhinitis was defined as meeting study criteria for rhinitis alongside positive aeroallergen sensitisation at the time-point of diagnosis. Logistic regression modelling was performed and co-variates were selected based on a significance level of 0.1 at univariate analyses.

**Online Repository Table E4- The associations between food allergy/food allergen sensitisation and Non-atopic asthma (univariate)**

|  |  |  |
| --- | --- | --- |
|  | Non-atopic asthma at 18 years(OR [95% CI]) | Non-atopic asthma at 26 years(OR [95% CI]) |
| FA at 1 or 2 years | 2.27 (0.96-5.36)P=0.080 | 0.54 (0.07-4.16)P=1.000 |
| FA at 4 years | **6.42 (2.53-16.25)P=0.001** | 1.18 (0.15-9.31)P=0.594 |
| FA at 10 years | 0.40 (0.02-6.78)P=0.526 | 0.51 (0.03-8.78)P=0.643\* |
| FAS in symptomatic infants at 1 or 2 years | 2.73 (0.56-13.33)P=0.232\* | 0.75 (0.03-19.70)P=0.865\* |
| FAS at 4 years | 0.90 (0.05-15.89)P=0.942\* | 1.91 (0.10-35.60)P=0.664\* |
| FAS at 10 years | 0.36 (0.02-6.10)P=0.480\* | 0.79 (0.05-13.78)P=0.869\* |

FA: Food allergy, FAS: Food allergen sensitisation. OR;95 CI= odds ratio (95% confidence interval). Non-atopic asthma was defined as meeting study criteria for asthma in the absence of allergen sensitisation at the time. Chi-squared or Fisher’s exact tests were used to assess the associations. \*Where zeros cause problems with computation of the odds ratio, the Haldane-Anscombe correction was applied.

**Online Repository Table E5- The associations between food allergy/food allergen sensitisation and Non-atopic rhinitis (Univariate)**

|  |  |  |
| --- | --- | --- |
|  | Non-atopic rhinitis at 18 years(OR [95% CI]) | Non-atopic rhinitis at 26 years(OR [95% CI]) |
| FA at 1 or 2 years | 1.20 (0.56-2.56)P=0.642 | 0.68 (0.25-1.84)P=0.444 |
| FA at 4 years | 0.96 (0.32-2.85)P=1.000 | 0.58 (0.17-2.05)P=0.581 |
| FA at 10 years | 0.17 (0.01-2.91)P=0.223\* | 0.58 (0.13-2.68)P=0.740 |
| FAS in symptomatic infants at 1 or 2 years | 1.22 (0.31-4.90)P=1.000 | 0.53 (0.09-3.06)P=0.686 |
| FAS at 4 years | 0.38 (0.02 – 6.88)P=0.515\* | 0.30 (0.02-5.51)P=0.418\* |
| FAS at 10 years | 0.48 (0.03-8.67)P=0.616\* | 0.21 (0.01-3.66)P=0.282\* |

FA: Food allergy, FAS: Food allergen sensitisation. OR;95 CI= odds ratio (95% confidence interval). Non-atopic rhinitis was defined as meeting study criteria for rhinitis in the absence of allergen sensitisation at the time. Chi-squared or Fisher’s exact tests were used to assess the associations. \*Where zeros cause problems with computation of the odds ratio, the Haldane-Anscombe correction was applied.

**Online Repository Table E6: Subgroup analysis of subjects seen at age 26 vs not-seen at age 26**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Not seen at age 26 N=503** | **Seen at age 26N=1033** | **P value** |
| Sex, Female | 37.6% (189/503) | 54.2% (560/1033) | <0.001 |
| Eczema at 1 or 2 | 12.9% (54/417) | 14.8% (142/960) | 0.369 |
| Eczema at 4 | 11.4% (39/343) | 12.4% (108/871) | 0.621 |
| Eczema at 10 | 11.2% (43/385) | 14.7% (143/973) | 0.088 |
| Asthma at 4 | 14.9% (51/343) | 15.0% (15/871) | 0.940 |
| Asthma at 10 | 14.8% (58/393) | 14.7% (143/975) | 0.965 |
| Asthma at 18 | 13.8% (45/326) | 19.0% (186/979) | 0.033 |
| Rhinitis at 4 | 4.1% (14/343) | 6.0% (52/871) | 0.191 |
| Rhinitis at 10 | 13.3% (52/392) | 15.8% (153/970) | 0.241 |
| Rhinitis at 18 | 33.8% (111/328) | 36.4% (357/981) | 0.404 |
| Food Allergy at 1 or 2 | 6.9% (27/394) | 8.3% (78/938) | 0.366 |
| Food Allergy at 4 | 4.7% (16/343) | 5.1% (45/874) | 0.728 |
| Food Allergy at 10 | 1.8% (8/447) | 2.9% (29/921) | 0.210 |
| Food allergen sensitisation in symptomatic infants at 1 or 2 | 25% (10/40) | 41.3% (43/104) | 0.068 |
| Food allergen sensitisation at 4 | 4% (10/253) | 2.9% (21/727) | 0.405 |
| Food allergen sensitisation at 10 | 4.8% (12/249) | 4.5% (35/786) | 0.809 |
| Aeroallergen sensitisation at 4 | 18.2% (46/253) | 17.1% (124/727) | 0.684 |
| Aeroallergen sensitisation at 10 | 24.5% (61/249) | 27.4% (215/787) | 0.375 |
| Aeroallergen sensitisation at 18 | 38.8% (54/139) | 40.6% (289/712) | 0.702 |

Chi-squared tests or Fishers exact tests were performed to assess for associations. SPT was only performed at ages 1 or 2 when clinically indicated.

**Online Repository Table E7: Sensitivity analysis of subjects with complete follow-up up to age 26 questionnaires**

|  |  |  |
| --- | --- | --- |
|  | Asthma at 18 years | Rhinitis at 18 years |
| aOR [95% CI] | Number of cases included in model | aOR [95% CI] | Number of cases included in model |
| FA at 1 or 2 years | 1.56 (0.89-2.76)P=0.124 | 886 | 0.86 (0.49-1.51)P=0.588 | 681 |
| FA at 4 years | **3.59 (1.90-6.78)P<0.001** | 831 | 0.75 (0.35-1.60)P=0.462 | 721 |
| FA at 10 years | 0.68 (0.20-2.31)P=0.532 | 825 | 0.49 (0.16-1.54)P=0.223 | 627 |
| FAS in symptomatic infants at 1 or 2 years | **5.13 (1.68-15.63)P=0.004** | 100 | 1.56 (0.61-3.98)P=0.352 | 82 |
| FAS at 4 years | **5.02 (1.89-13.33)P=0.001** | 698 | **3.21 (1.17-8.80)P=0.023** | 609 |
| FAS at 10 years | **4.21 (2.03-8.71)P<0.001** | 754 | **9.76 (3.31-28.76)P<0.001** | 594 |
| Co-variates included in the model | Family history of asthma, Family history of rhinitis, Family history of eczema, Sex, Eczema at corresponding age | Family history of rhinitis, Cord IgE, Eczema at corresponding age |

FA: Food allergy, FAS: Food allergen sensitisation. aOR;95 CI= adjusted odds ratio (95% confidence interval). Family history: Paternal, Maternal or Sibling history of disease. Cord IgE= Cord immunoglobulin E, a dichotomous variable based on a cut-off of ≥0.5kU/L. Eczema at corresponding age: met the study definition of eczema at the corresponding age time point. Logistic regression modelling was performed and co-variates were selected based on a significance level of 0.1 at univariate analyses.

**Online Repository Table E8: Sensitivity analysis of subjects with complete follow-up up to age 26 skin prick test**

|  |  |  |
| --- | --- | --- |
|  | Asthma at 18 years | Rhinitis at 18 years |
| (aOR [95% CI]) | Number of cases included in model | (aOR [95% CI]) | Number of cases included in model |
| FA at 1 or 2 years | 1.62 (0.80-3.26)P=0.178 | 507 | 0.84 (0.39-1.77)P=0.638 | 401 |
| FA at 4 years | **3.94 (1.75-8,87)P=0.001** | 480 | 0.62 (0.24-1.60)P=0.321 | 418 |
| FA at 10 years | 0.63 (0.14-2.92)P=0.558 | 458 | 0.69 (0.17-2.80)P=0.603 | 363 |
| FAS in symptomatic infants at 1 or 2 years | **4.22 (1.16-15.45)P=0.029** | 59 | 2.58 (0.71-9.41)P=0.151 | 49 |
| FAS at 4 years | **5.86 (1.72-19.94)P=0.005** | 425 | 3.25 (0.94-11.26)P=0.063 | 372 |
| FAS at 10 years | **6.66 (2.71-16.17)P<0.001** | 471 | **35.56 (4.67-270.98)P=0.001** | 377 |
| Co-variates included in the model | Family history of asthma, Family history of rhinitis, Family history of eczema, Sex, Eczema at corresponding age | Family history of rhinitis, Cord IgE, Eczema at corresponding age |

FA: Food allergy, FAS: Food allergen sensitisation. aOR;95 CI= adjusted odds ratio (95% confidence interval). Family history: Paternal, Maternal or Sibling history of disease. Cord IgE= Cord immunoglobulin E, a dichotomous variable based on a cut-off of ≥0.5kU/L. Eczema at corresponding age: met the study definition of eczema at the corresponding age time point. Logistic regression modelling was performed and co-variates were selected based on a significance level of 0.1 at univariate analyses.

**Online Repository Table E9: Sensitivity analysis of subjects with complete follow-up up to age 26**

|  |  |  |
| --- | --- | --- |
|  | Atopic Asthma at 18 years  | Atopic Rhinitis at 18 years |
| (aOR [95% CI]) | Number of cases included in model | (aOR [95% CI]) | Number of cases included in model |
| FA at 1 or 2 years | 1.16 (0.52-2.60)P=0.712 | 508 | 0.82 (0.41-1.64)P=0.577 | 481 |
| FA at 4 years | 2.61 (0.93-7.35)P=0.069 |  530 | 0.66 (0.25-1.76)P=0.406 | 501 |
| FA at 10 years | 0.96 (0.20-4.55)P=0.959 | 461 | 0.76 (0.23-2.50)P=0.651 | 437 |
| FAS in symptomatic infants at 1 or 2 years | 4.24 (0.82-21.89)P=0.085 | 64 | 1.31 (0.40-4.31)P=0.657 | 61 |
| FAS at 4 years | **5.93 (1.60-21.94)P=0.008** | 472 | 3.26 (0.91-11.72)P=0.070 | 445 |
| FAS at 10 years | **6.76 (2.85-16.04)P<0.001** | 479 | **16.86 (4.91-57.93)P<0.001** | 455 |
| Co-variates included in the model | Family history of asthma, Family history of rhinitis, Family history of eczema, Cord IgE, eczema at corresponding age time point | Family history of asthma, Family history of rhinitis, Cord IgE, eczema at corresponding age time point |

FA: Food allergy, FAS: Food allergen sensitisation. aOR;95 CI= adjusted odds ratio (95% confidence interval). Family history: Paternal, Maternal or Sibling history of disease. Cord IgE= Cord immunoglobulin E, a dichotomous variable based on a cut-off of ≥0.5kU/L. Eczema at corresponding age: met the study definition of eczema at the corresponding age time point. Logistic regression modelling was performed and co-variates were selected based on a significance level of 0.1 at univariate analyses.

**Online Repository Table E10: Sensitivity analysis of subjects with complete follow-up up to age 26 skin prick test**

|  |  |  |
| --- | --- | --- |
|  | Atopic Asthma at 18 years | Atopic Rhinitis at 18 years |
| (aOR [95% CI]) | Number of cases included in model | (aOR [95% CI]) | Number of cases included in model |
| FA at 1 or 2 years | 1.28 (0.48-3.44)P=0.627 | 340 | 0.78 (0.32-1.91)P=0.582 | 324 |
| FA at 4 years | 1.37 (0.37-5.10)P=0.637 | 353 | 0.36 (0.10-1.28)P=0.114 | 335 |
| FA at 10 years | 1.43 (0.28-7.46)P=0.671 | 310 | 0.93 (0.22-3.87)P=0.918 | 295 |
| FAS in symptomatic infants at 1 or 2 years | 2.66 (0.39-18.09)P=0.317 | 41 | 2.77 (0.58-13.38)P=0.203 | 41 |
| FAS at 4 years | **7.54 (1.56-36.54)P=0.012** | 323 | 3.34 (0.76-14.67)P=0.110 | 306 |
| FAS at 10 years | **10.17 (3.63-28.52)P<0.001** | 328 | **49.33 (6.33-384.15)P<0.001** | 313 |
| Co-variates included in the model | Family history of asthma, Family history of rhinitis, Family history of eczema, Cord IgE, eczema at corresponding age time point | Family history of asthma, Family history of rhinitis, Cord IgE, eczema at corresponding age time point |

FA: Food allergy, FAS: Food allergen sensitisation. aOR;95 CI= adjusted odds ratio (95% confidence interval). Family history: Paternal, Maternal or Sibling history of disease. Cord IgE= Cord immunoglobulin E, a dichotomous variable based on a cut-off of ≥0.5kU/L. Eczema at corresponding age: met the study definition of eczema at the corresponding age time point. Logistic regression modelling was performed and co-variates were selected based on a significance level of 0.1 at univariate analyses.

**Online Repository Table E11- Example Crosstabulation between Food allergen sensitisation and Aeroallergen sensitisation**

|  |  |  |
| --- | --- | --- |
|  | No aeroallergen sensitisation at 26 years | Aeroallergen sensitisation at 26 years |
| No FAS at 10 years | **262/461** | **199/461** |
| FAS at 10 years | **0** | **23/23** |

FA: Food allergy, FAS: Food allergen sensitisation, OR;95 CI= odds ratio (95% confidence interval). Chi-squared or Fisher’s exact tests were used to assess the associations.