**SUPPLEMENTAL MATERIALS**

**eTable 1. Supplement table of international classification of disease (ICD) codes**

|  |  |  |  |
| --- | --- | --- | --- |
|  | ICD7 (1969-1986) | ICD8 (1987-1996) | ICD 9 (1997-) |
| Primary outcomes: |  |  |  |
| Any psychiatric disorder | Any of the below codes | Any of the below codes | Any of the below codes |
| Suicide attempts | E950-E959 | E950-E959 | X60-X84 |
| Secondary outcomes, specific categories of psychiatric disorder: |  |  |  |
| Psychotic disorders | 295, 297-299; | 295, 297, 298; | F20-F29 |
| Mood disorders | 296, 300.40; | 296, 300E, 311 | F30-F39 |
| Anxiety disorders | 300.00-300.30,300.50-300.99, 307; | 300, 300A-300D, 300F-300X, 308-309 | F40-F45, F48 |
| Substance misuse | 291, 303, 304; | 291, 303, 304, 305A, 305X | F10-F19 |
| Behavioral disorders | - | - | F91 |
| Attention-deficit hyperactivity disorder (ADHD) | - | 314 | F90 |
| Autism spectrum disorders | - | 299A | F84.0, F84.1, F84.5, F84.8, F84.9 |
| Intellectual disability | 310-315; | 317-319 | F70-F79 |
| Personality disorders | 301 | 301 | F60-F62, F69 |
|  |  |  |  |
| IBD\* | 563.10, 563.99, 569.02, 563.00 | 556, 555 | K51, K50, K52,3 |
| Celiac disease\*\* |  |  |  |
| Asthma |  | 493, 493A, 493B, 493X | J45.0, J45.1, J45.8, J45.9 and J46 |
|  |  |  |  |

\* Inflammatory bowel disease (IBD) defined by both ICD-codes and topography T62 - T68 (esophagus through anal) and SNOMED histopathology codes: M41, M42, M43, M44, M463, M47, D6214, D62165, D6255

\*\*Celiac disease defined by topography T64/T65 (duodenum-jejunum), except 'T652','T65200','T653','T65300','T654','T656','T65600','T65620','T6592','T6593'

and SNOMED histopathology codes: ‘M58','D6218','D62180', 'D6218X','D6218Y','D62188'

**eTable 2. Study participants excluded due to psychiatric diagnoses occurring prior to EoE diagnosis and corresponding date in reference individuals and siblings**

|  |  |  |  |
| --- | --- | --- | --- |
| DISORDER BEFORE DIAGNOSIS  (Exclusion criteria) | EoE | Reference individuals | Siblings |
| Suicide attempt | 0 [0.00] | 0 [0.00] | 0 [0.00] |
| Psychotic disorders | 11 [0.66] | 64 [0.77] | 35 [1.48] |
| Mood disorders | 73 [4.39] | 338 [4.07] | 127 [5.38] |
| Anxiety disorders | 106 [6.37] | 418 [5.04] | 151 [6.40] |
| Substance misuse | 37 [2.22] | 306 [3.69] | 117 [4.96] |
| Behavioral disorders | 0 [0.00] | 8 [0.10] | 2 [0.08] |
| ADHD | 20 [1.20] | 100 [1.20] | 23 [0.97] |
| Autism spectrum disorders | 17 [1.02] | 50 [0.60] | 9 [0.38] |
| Intellectual disability | 18 [1.08] | 41 [0.49] | 11 [0.47] |
| Personality disorders | 8 [0.48] | 56 [0.67] | 21 [0.89] |
| Suicide | 0 [0.00] | 4 [0.05] | 5 [0.21] |

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| --- | --- | --- | --- |
| **eTable 3: Crude hazard ratios for psychiatric disorder in EoE individuals versus general population reference individuals and siblings.** | | | |
|  | | | |
|  | EoE | Reference individuals | Siblings |
|  | | | |
|  | Events/1000 py | Events/1000 py, HR (95%CI) | Events/1000 py, HR (95%CI) |
| Total | 106/6.64 | 331/30.27, 1.46 [1.17-1.82] | 74/8.23, 1.59 [1.13-2.24] |
| SEX |  |  |  |
| Male | 73/5.05 | 256/22.92, 1.29 [0.99-1.67] | 38/4.28, 1.29 [0.75-2.24] |
| Female | 33/1.59 | 75/7.35, 2.03 [1.35-3.06] | 36/3.95, 1.41 [0.62-3.21] |
| AGE AT START OF FOLLOW UP, years |  |  |  |
| ≤17 | 53/1.58 | 110/8.30, 2.52 [1.81-3.49] | 21/1.99, 3.43 [1.80-6.53] |
| 18 - ≤39 | 27/1.88 | 108/8.47, 1.12 [0.73-1.70] | 23/2.40, 0.98 [0.45-2.12] |
| 40 - ≤59 | 12/2.13 | 86/9.11, 0.60 [0.33-1.10] | 22/2.81, 0.70 [0.30-1.63] |
| ≥60 | 14/1.04 | 27/4.39, 2.24 [1.17-4.30] | 8/1.04, 0.94 [0.30-2.99] |
| YEARS OF FOLLOW UP |  |  |  |
| <1 | 30/1.44 | 70/6.36, 1.89 [1.23-2.90] | 11/1.69, 3.16 [1.50-6.64] |
| 1 - <5 | 59/3.89 | 193/17.53, 1.41 [1.05-1.89] | 43/4.80, 1.57 [1.01-2.44] |
| 5 - <10 | 16/1.14 | 57/5.44, 1.29 [0.74-2.27] | 16/1.45, 0.66 [0.25-1.76] |
| 10 - <20 | 1/0.15 | 10/0.86, 0.78 [0.09-6.69] | 4/0.25, NC |
| ≥20 | 0/0.02 | 1/0.09, NC | 0/0.04, NC |
| YEAR OF START OF FOLLOW UP |  |  |  |
| 1989 - 1999 | 4/0.25 | 11/1.21, 1.69 [0.54-5.31] | 3/0.40, 1.63 [0.26-10.37] |
| 2000 - 2009 | 32/1.54 | 79/7.61, 2.00 [1.33-3.02] | 20/1.79, 1.79 [0.90-3.59] |
| 2010 - 2017 | 70/4.84 | 241/21.46, 1.29 [0.99-1.68] | 51/6.04, 1.52 [1.02-2.28] |
| YEAR OF START OF FOLLOW UP  (with max 3 years of follow up) |  |  |  |
| 1989 - 1999 | 1/0.05 | 1/0.23, 4.79 [ 0.30-76.62] | 2/0.07, 0.95 [ 0.08-11.36] |
| 2000 - 2009 | 14/0.52 | 20/2.46, 3.27 [1.65-6.48] | 4/0.57, 5.51 [ 1.50-20.18] |
| 2010 - 2014 | 43/2.48 | 112/11.02, 1.70 [1.20-2.42] | 26/3.11, 1.97 [1.16-3.34] |
| COUNTRY OF BIRTH |  |  |  |
| Nordic | 102/6.35 | 284/26.14, 1.51 [1.21-1.90] | 68/7.98, 1.69 [1.19-2.41] |
| Other | 4/0.30 | 47/4.14, 0.50 [0.05-5.58] | 6/0.26, 0.39 [0.04-3.59] |
| EDUCATION, years |  |  |  |
| Compulsory school (≤9) | 16/0.98 | 77/5.48, 1.37 [0.73-2.58] | 14/1.12, 1.04 [0.27-3.97] |
| Upper secondary school (10-12) | 30/2.38 | 114/10.29, 0.92 [0.58-1.46] | 26/2.95, 1.31 [0.57-3.03] |
| College or university (≥13) | 15/2.01 | 50/7.34, 0.96 [0.47-1.96] | 16/2.46, 0.77 [0.25-2.34] |
| Missing | 45/1.28 | 90/7.17, 2.76 [1.91-3.99] | 18/1.71, 3.18 [1.56-6.47] |
|  | | | |

**EoE, Eosinophilic esophagitis**. Py, person-years.

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| --- | --- | --- | --- | --- | --- |
| **eTable 4: EoE and risk of individual psychiatric disorders: Crude HRs.** | | | | | |
|  | | | | | |
| Type of disorder | EoE | Reference individuals | Siblings |
|  | Events/1000 py | Events/1000 py, HR (95%CI) | Events/1000 py, HR (95%CI) |
| All | 106/6.64 | 331/30.27, 1.46 [1.17-1.82] | 74/8.23, 1.59 [1.13-2.24] | |
| Suicide attempts | 0/7.06 | 0/31.25 | 0/8.49 | |
| Psychotic disorders | 0/7.06 | 6/31.24, NC | 3/8.49, NC | |
| Mood disorders | 37/6.92 | 98/30.95, 1.69 [1.16-2.47] | 26/8.37, 1.51 [0.86-2.66] | |
| Anxiety disorders | 51/6.89 | 165/30.77, 1.38 [1.01-1.89] | 36/8.36, 1.61 [1.00-2.60] | |
| Substance misuse | 21/6.99 | 86/31.03, 1.08 [0.67-1.75] | 16/8.45, 1.91 [0.89-4.10] | |
| Behavioral disorders | 4/7.04 | 8/31.23, 2.23 [0.67-7.39] | 1/8.49, 3.65 [0.37-35.83] | |
| Attention-deficit hyperactivity-disorder | 24/6.98 | 52/31.10, 2.06 [1.27-3.34] | 13/8.46, 1.27 [0.57-2.81] | |
| Autism spectrum disorders | 7/7.02 | 22/31.20, 1.43 [0.61-3.34] | 3/8.48, 2.19 [0.51-9.34] | |
| Intellectual disability | 7/7.01 | 2/31.23, 15.56 [3.23-74.92] | 0/8.49, NC | |
| Personality disorders | 3/7.04 | 8/31.22, 1.67 [0.44-6.30] | 3/8.47, 1.32 [0.20-8.56] | |
| Suicide | 0/7.06 | 3/31.25, NC | 0/8.49 | |

**EoE, Eosinophilic esophagitis.** py, person-years.

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| --- | --- | --- | --- |
| **eTable 5: Psychiatric drugs incidence rates and HRs for EoE patients and reference individuals** | | | |
|  | | | |
|  | EoE | Reference individuals | Siblings |
|  | | | |
| Study participants | 1144 | 4385 | 1495 |
| N events | 191 | 449 | 167 |
| Incidence proportion [%] | 16.70 | 10.24 | 11.17 |
| Person years | 4665 | 19021 | 6412 |
| Incidence rate/  1000 person-years [95% CI] | 40.94 [35.54-46.95] | 23.61 [21.52-25.84] | 26.04 [22.39-30.14] |
| HR | 191/4.67 | 1.73 [1.46-2.04] | 1.57 [1.19-2.06] |
| Adjusted HR\* | 191/4.67 | 1.68 [1.42-1.99] | 2.18 [1.57-3.02] |
| EoE, eosinophilic esophagitis. HR, hazard ratio.  \*adjusted for year, age, sex, county (see text); | | | |