

Supplemental Online Content

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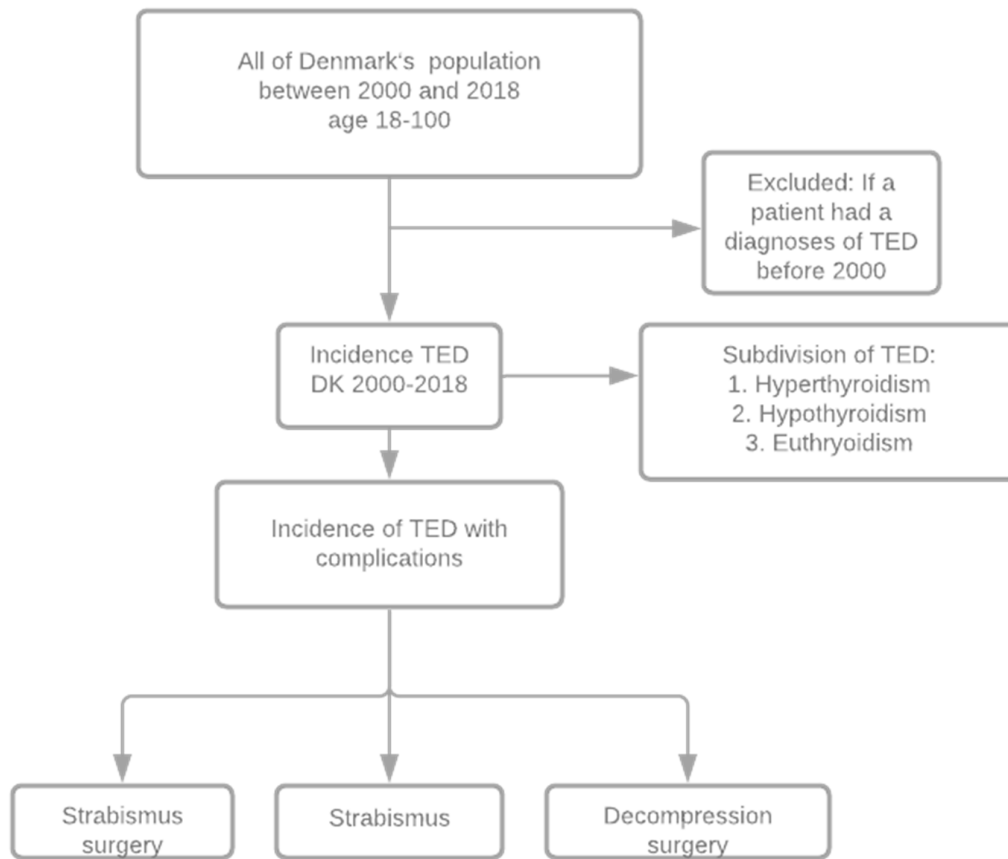
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This supplemental material has been provided by the authors to give readers additional information about their work.

Figure 1. Flowchart of the Danish nationwide register study of thyroid eye disease

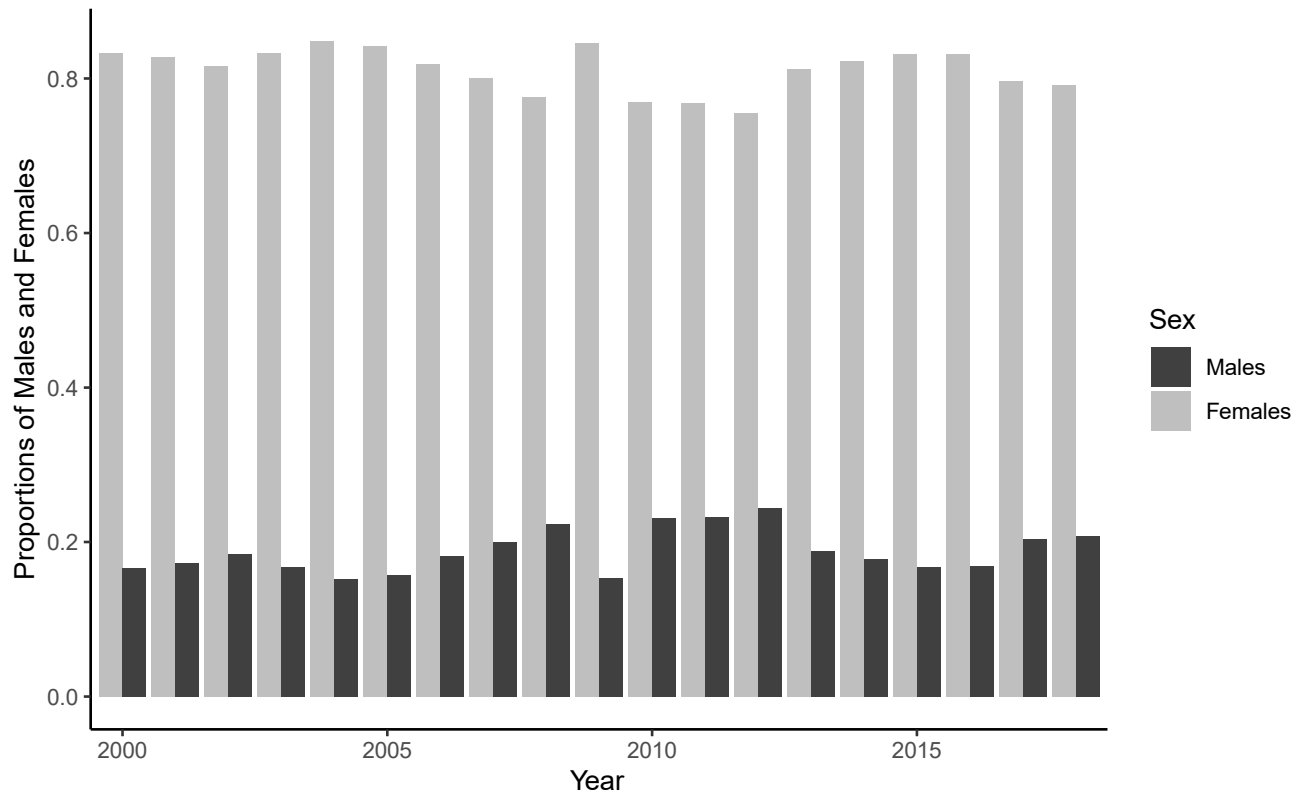


eTable 1. List of diagnoses codes used in the study

Disease	ICD (International Classification of Disease), ATC (Anatomical Therapeutic Chemical Code), NOMESCO (Nordic Medicostatistical Classification of Surgical Procedures)
Thyroid Eye Disease (TED)	<p>ICD-8 and ATC</p> <p>Morbus basedowi, struma diffusa toxica cum exophthalmo (24200) OR Exophthalmus malignus (24201) and two prescriptions OR Exophthalmus (sine thyreotoxicosi) (78111) and two prescriptions</p> <p><i>Prescription definition:</i> At least 2 redeemed prescriptions within the 5 preceding years of:</p> <p>Thiouracils (H03BA) OR Propylthiouracil (H03BA02) OR Carbimazole (H03BB01) OR Thiamazole (H03BB02) OR Levothyroxine sodium (H03AA01)</p> <p>ICD-10 and ATC</p> <p>Dysthyroid exophthalmos (DH62) OR Exophthalmic conditions (DH052) and two prescriptions</p> <p><i>Prescription definition:</i> At least 2 redeemed prescriptions within the 5 preceding years of:</p> <p>Thiouracils (H03BA) OR Propylthiouracil (H03BA02) OR Carbimazole (H03BB01) OR Thiamazole (H03BB02) OR Levothyroxine sodium (H03AA01)</p>
Strabismus	<p>ICD-10 and ATC</p> <p>Other type of strabismus (DH50) OR Esotropia alternans (DH500A) OR Esotropia mononuclearis (DH500B) OR Exotropia monocularis (DH501A) OR Exotropia alternans (DH501B) OR Vertical strabismus (DH502) OR Hypertropia (DH502A) OR Hypotropia (DH502B) OR Heterotropia Intermittans (DH503) OR Esotropia intermittens monocularis (DH503A) OR Esotropia intermittens alternans (DH503B) OR Exotropia intermittens monocularis (DH503C) OR Exotropia intermittens alternans (DH503D) OR Other and unspecified heterotropia (DH504) OR Cyclotropia (DH504A) OR Heterotropia unspecified (DH504B) OR Heteroforia</p>

	(DH505) <i>OR</i> Esoforia (DH505A) <i>OR</i> Exoforia (DH505B) <i>OR</i> Hyperphoria alternans (DH505C) <i>OR</i> Strabismus mechanicus (DH506) <i>OR</i> Strabismus due to adherences (DH506B) <i>OR</i> Other form of strabismus (DH508) <i>OR</i> Strabismus unspecified (DH509)
Strabismus surgery	NOMESCO Recession of extraocular muscle (CEC 00) <i>OR</i> Recession and resection of extraocular muscle (CEC 10) <i>OR</i> Recession and advancement of extraocular muscle (CEC 20) <i>OR</i> Transposition of extraocular muscle with adjustable suture (CEC 60) <i>OR</i> Partial transposition of extraocular muscle (CEC 80) <i>OR</i> Total transposition of extraocular muscle (CEC 90)
Decompression surgery	NOMESCO Lateral decompression of orbit (CAC 20) <i>OR</i> Decompression of orbit to sinuses (CAC30)

Figure 2. The distribution of sex in thyroid eye disease patients



eTable 2: Annual incidence (per 100,000) of thyroid eye disease in Denmark from 2000-2018

Calendar year	N	Incidence in females		Incidence in males		Incidence, All	
		Numerical	Standardized	Numerical	Standardized	Numerical	Standardized
2000	258	10.1	11.0	2.1	2.3	6.2	6.8
2001	255	9.9	10.8	2.2	2.4	6.1	6.7
2002	266	10.2	11.1	2.4	2.7	6.4	7.0
2003	263	10.2	11.2	2.1	2.4	6.3	6.9
2004	250	9.9	10.8	1.9	2.1	6.0	6.5
2005	209	8.2	8.9	1.6	1.8	5.0	5.4
2006	204	7.8	8.5	1.8	2.0	4.8	5.3
2007	180	6.7	7.2	1.7	1.9	4.3	4.6
2008	161	5.8	6.2	1.7	1.9	3.8	4.1
2009	156	6.0	6.5	1.1	1.2	3.6	3.9
2010	130	4.6	4.8	1.4	1.5	3.0	3.2
2011	155	5.4	5.7	1.7	1.8	3.6	3.8
2012	213	7.2	7.6	2.4	2.6	4.9	5.1
2013	271	9.8	10.2	2.4	2.5	6.1	6.4
2014	231	8.4	8.7	1.9	2.0	5.2	5.4
2015	238	8.7	8.9	1.8	1.9	5.3	5.4
2016	243	8.8	8.9	1.8	1.9	5.4	5.4
2017	221	7.6	7.7	2.0	2.0	4.8	4.9
2018	202	6.9	6.9	1.8	1.8	4.4	4.4

eTable 3: Sex and mean age of the thyroid eye disease patients in Denmark from 2000-2018

Calendar Year	Females			Males			All		
	N	Mean Age	SD	N	Mean Age	SD	N	Mean Age	SD
2000	215	50.3	14.5	43	47.0	12.3	258	49.8	14.2
2001	211	49.6	14.7	44	48.2	15.8	255	49.3	14.9
2002	217	48.7	14.4	49	51.4	15.3	266	49.2	14.6
2003	219	51.0	15.1	44	51.9	12.4	263	51.2	14.6
2004	212	52.0	14.6	38	52.7	16.2	250	52.1	14.8
2005	176	51.5	13.9	33	50.3	12.9	209	51.3	13.7
2006	167	51.6	14.6	37	52.3	12.3	204	51.7	14.2
2007	144	52.9	14.1	36	55.1	14.5	180	53.4	14.2
2008	125	51.4	13.5	36	52.9	13.1	161	51.8	13.4
2009	132	52.9	14.7	24	47.6	12.4	156	52.1	14.5
2010	100	49.7	14.6	30	54.7	11.7	130	50.9	14.1
2011	119	52.8	16.8	36	51.1	13.0	155	52.4	16.0
2012	161	51.5	14.5	52	53.5	15.9	213	52.0	14.8
2013	220	50.8	14.3	51	53.4	16.0	271	51.3	14.6
2014	190	50.7	14.2	41	52.0	15.8	231	50.9	14.5
2015	198	50.6	13.4	40	55.5	14.7	238	51.4	13.7
2016	202	52.0	15.1	41	55.0	14.4	243	52.5	15.0
2017	176	51.5	15.2	45	53.6	16.9	221	51.9	15.6
2018	160	50.7	14.2	42	52.0	14.0	202	51.0	14.1

eTable 4: The calculated mean incidence (per 100,000/year) of thyroid eye disease in Denmark from 2000-2018

	Mean Incidence PYR (SD)	Highest Incidence	Lowest Incidence
Overall	5.0 (\pm 1.0)	6.4	3.0
Overall Standard	5.3 (\pm 1.2)	7.0	3.2
Males	1.9 (\pm 0.3)	2.4	1.1
Males, Standardized	2.0 (\pm 0.4)	2.7	1.2
Females	8.0 (\pm 1.8)	10.2	4.6
Females, Standardized	8.5 (\pm 2.0)	11.2	4.8

eTable 5: The thyroid medication prescribed to patients who were euthyroid at the time of being diagnosed with thyroid eye disease (TED) (cumulative incidence given in %)

Years after diagnosis of TED	Antithyroid medication prescription	L-T4 therapy prescription	Death
1	37	9	2
2	38	11	2
3	39	12	3
4	41	13	3
5	41	14	4
6	41	15	5
7	42	15	6
8	42	16	6
9	42	16	7
10	42	17	8

eTable 6: The cumulative incidence of being diagnosed with strabismus after being diagnosed with thyroid eye disease (TED)

(cumulative incidence given in %)

Years after diagnosis of TED	Strabismus	Death
1	6	1
2	8	2
3	10	3
4	10	4
5	11	5
6	11	5
7	11	6
8	11	7
9	12	9
10	12	10

eTable 7: The cumulative incidence of being diagnosed with strabismus after being diagnosed with thyroid eye disease (TED) stratified by sex (cumulative incidence given in %)

Years after TED diagnosis	Cumulative incidence in females		Cumulative incidence in males	
	Strabismus	Death	Strabismus	Death
1	5	1	6	1
2	8	2	10	3
3	9	2	12	4
4	10	3	13	4
5	10	4	14	6
6	10	5	15	6
7	10	6	15	7
8	11	7	15	8
9	11	8	16	10
10	11	10	16	11

eTable 8: The cumulative incidence of undergoing strabismus surgery after being diagnosed with thyroid eye disease (TED)
(cumulative incidence given in %)

Years after diagnosis of TED	Strabismus Surgery	Death
1	2	1
2	5	2
3	7	3
4	8	4
5	9	5
6	9	6
7	9	7
8	10	8
9	10	9
10	10	10

eTable 9: The cumulative incidence of undergoing strabismus surgery after being diagnosed with thyroid eye disease (TED) stratified by sex (cumulative incidence given in %)

Years after TED diagnosis	Cumulative incidence in females		Cumulative incidence in males	
	Strabismus Surgery	Death	Strabismus Surgery	Death
1	1	1	3	1
2	4	2	8	3
3	6	3	11	4
4	7	3	13	5
5	8	5	14	6
6	8	5	15	6
7	8	7	15	8
8	8	8	15	9
9	8	9	15	10
10	9	10	16	11

eTable 10: The cumulative incidence of undergoing decompression surgery after being diagnosed with thyroid eye disease (TED)
(cumulative incidence given in %)

Years after diagnosis of TED	Decompression Surgery	Death
1	2	1
2	3	2
3	4	3
4	5	4
5	5	5
6	5	6
7	5	7
8	5	8
9	5	10
10	6	11

eTable 11: The cumulative incidence of undergoing decompression surgery after being diagnosed with thyroid eye disease (TED) stratified by sex (cumulative incidence given in %)

Years after TED diagnosis	Cumulative incidence in females		Cumulative incidence in males	
	Decompression surgery	Death	Decompression Surgery	Death
1	2	1	2	1
2	3	2	4	3
3	4	3	4	4
4	5	4	5	5
5	5	5	5	7
6	5	6	5	7
7	5	7	5	9
8	5	8	6	10
9	5	9	6	12
10	5	10	6	13