Decreasing mortality and changes in treatment patterns in patients with acromegaly from a nationwide study

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The authors apologise for errors that have appeared in the article by Espito *et al.* published in the May 2018 issue of the *European Journal of Endocrinology* (vol 178, iss 5, pages 459–469).

They state that after publishing the paper, the collaboration between the research parties was continued to further understand the excess mortality that was found among patients with acromegaly in Sweden between 1987 and 2013. During this process, the authors discovered that all standardized mortality ratios (SMRs) in the article were systematically overestimated. The correct SMRs are summarised in Table 6 below.

The authors have suggested the following changes to the various sections in their article.

Changes to the Abstract

Results: Overall SMR was 1.33 (95% CI: 1.17–1.52) with 232 observed and 174 expected deaths. Mortality was mainly related to circulatory diseases (SMR: 1.34 (95% CI: 1.08–1.64)), including cerebrovascular disease (1.63, 1.06–2.41). Mortality was only increased during the first time period, suggesting a reduction in mortality over time.

Conclusions: Excess mortality was found in this nationwide cohort of patients with acromegaly, mainly related to circulatory diseases.

Changes to the Results section

The corrected Fig. 1, Tables 3 and 5 are printed in full below. Supplementary Table 3 (see section on supplementary data given at the end of this article) has also been revised and is available with the online version of this Erratum article.

A summary of the correct SMRs is presented in Table 6.

Figure 1

Mortality in patients with acromegaly in Sweden followed between 1987 and 2013. Overall mortality in the entire cohort of patients (A), men (B) and women (C) with acromegaly. *** $P < 0.001$.

Changes to the Discussion section

Page 464: Mortality due to ischemic heart disease and malignancy was not increased.

Page 465: We did not observe an excess mortality from malignancies, which is in line with a Finnish study including 333 patients followed for 20 years.

Page 465: The mortality was only increased during the first time period (1987–1995) suggesting decreasing mortality over time.

Page 467: In conclusion, excess mortality was found in this nationwide cohort of unselected patients with acromegaly, mainly related to circulatory diseases.

The authors once again apologise for these errors.

Table 3 Standardized mortality ratio in patients with acromegaly in Sweden between 1987 and 2013.

Mortality	No. observed	No. expected	SMR (95% CI)	P Value
Overall mortality				
Acromegalic patients (n = 1089)	232	174.1	1.33 (1.17–1.52)	<0.0001
Men (n = 509)	107	80.7	1.33 (1.09–1.60)	0.006
Women (n = 580)	125	93.5	1.34 (1.11–1.59)	0.002
Cause-specific mortality (ICD chapters)				
ICD-10 chapter 1, infectious disease	6	2.7	2.20 (0.81–4.79)	0.12
Men (n = 509)	2	1.2	NC	NC
Women (n = 580)	4	1.5	2.60 (0.71–6.66)	0.14
ICD-10 chapter 9, circulatory disease	93	69.3	1.34 (1.08–1.64)	0.008
Men (n = 509)	38	32.2	1.18 (0.84–1.62)	0.35
Women (n = 580)	55	37.1	1.48 (1.12–1.93)	0.007
ICD-10 chapter 10, respiratory disease	14	10.7	1.31 (0.71–2.19)	0.39
Men (n = 509)	5	4.7	1.06 (0.35–2.48)	0.99
Women (n = 580)	9	6.0	1.49 (0.68–2.83)	0.31
Cause-specific mortality (specific causes)				
Ischemic heart disease	36	33.2	1.08 (0.76–1.50)	0.68
Men (n = 509)	15	17.8	0.85 (0.47–1.40)	0.61
Women (n = 580)	21	15.5	1.36 (0.84–2.07)	0.21
Cerebrovascular disease*	25	15.3	1.63 (1.06–2.41)	0.028
Men (n = 509)	9	5.8	1.54 (0.71–2.93)	0.27
Women (n = 580)	16	9.5	1.69 (0.96–2.74)	0.066
Malignant neoplasms	49	50.6	0.97 (0.72–1.28)	0.90
Men (n = 509)	27	24.1	1.12 (0.74–1.63)	0.61
Women (n = 580)	22	26.5	0.83 (0.52–1.26)	0.44
Malignant neoplasm of brain	3	1.4	2.16 (0.45–6.32)	0.33
Overall mortality in subgroups				
All patients treated with surgery (n = 700)	100	85.5	1.17 (0.95–1.42)	0.13
Men (n = 340)	46	42.0	1.10 (0.80–1.46)	0.58
Women (n = 360)	54	43.5	1.24 (0.93–1.62)	0.14
Patients treated with surgery alone (n = 584)	91	75.6	1.20 (0.97–1.48)	0.093
Men (n = 290)	41	37.0	1.11 (0.80–1.50)	0.55
Women (n = 294)	50	38.6	1.30 (0.96–1.71)	0.089
All patients treated with radiotherapy (n = 144)	18	8.9	2.02 (1.20–3.20)	0.009
Men (n = 67)	10	4.8	2.07 (0.99–3.80)	0.053
Women (n = 77)	8	4.1	1.97 (0.85–3.88)	0.11
Patients treated with radiotherapy alone (n = 28)	9	3.2	2.82 (1.29–5.34)	0.011
Men (n = 17)	5	2.2	2.25 (0.73–5.26)	0.15
Women (n = 11)	4	1.0	4.09 (1.12–10.5)	0.035
Patients treated with both surgery and radiotherapy (n = 116)	9	5.7	1.59 (0.73–3.01)	0.24
Men (n = 50)	5	2.6	1.93 (0.63–4.50)	0.24
Women (n = 66)	4	3.1	1.30 (0.35–3.32)	0.74
Patients treated without both surgery and radiotherapy (n = 361)	123	80.1	1.54 (1.28–1.83)	<0.0001
Men (n = 152)	56	34.2	1.64 (1.24–2.12)	0.0008
Women (n = 209)	67	45.9	1.46 (1.13–1.86)	0.004

*No deaths caused by cerebrovascular disease were observed in patients treated with radiotherapy.

CI, confidence interval; NC, not calculated; SMR, standardized mortality ratio.

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Table 5 Time trends in mortality in patients with acromegaly in Sweden followed between 1987 and 2013.

Mortality	No. observed	No. expected	SMR (95% CI)	P Value
Overall mortality				
1987–1995	139	99.6	1.40 (1.17–1.65)	0.0002
1996–2004	73	60.1	1.21 (0.95–1.53)	0.12
2005–2013	20	14.4	1.40 (0.85–2.15)	0.18
Men				
1987–1995	59	46.2	1.28 (0.97–1.65)	0.078
1996–2004	37	28.0	1.32 (0.93–1.83)	0.12
2005–2013	11	6.5	1.69 (0.84–3.02)	0.13
Women				
1987–1995	80	53.4	1.50 (1.19–1.86)	0.0008
1996–2004	36	32.2	1.12 (0.78–1.55)	0.55
2005–2013	9	7.8	1.15 (0.53–2.18)	0.77
Patients treated with surgery alone				
1987–1995	63	44.5	1.42 (1.09–1.81)	0.010
1996–2004	26	25.1	1.03 (0.68–1.52)	0.92
2005–2013	2	5.9	NC	NC
Patients treated with radiotherapy alone				
1987–1995	4	1.5	2.60 (0.71–6.65)	0.14
1996–2004	4	0.9	4.30 (1.17–11.02)	0.030
2005–2013	1	0.7	NC	NC
Patients treated with both surgery and radiotherapy				
1987–1995	4	1.3	3.07 (0.84–7.87)	0.086
1996–2004	3	3.7	0.80 (0.17–2.35)	0.97
2005–2013	2	0.6	NC	NC
Patients treated without both surgery and radiotherapy				
1987–1995	68	46.9	1.45 (1.13–1.84)	0.0044
1996–2004	40	27.3	1.46 (1.05–1.99)	0.027
2005–2013	15	5.9	2.53 (1.41–4.16)	0.003

CI, confidence interval; NC, not calculated (for groups with less than three deaths); SMR, standardized mortality ratio.

Table 6 Standardized mortality ratio in patients with acromegaly in Sweden between 1987 and 2013.

Mortality	No. observed	No. expected	SMR (95% CI)	P Value
Overall mortality				
Acromegalic patients (<i>n</i> = 1089)	232	174.1	1.33 (1.17–1.52)	<0.0001
Men (<i>n</i> = 509)	107	80.7	1.33 (1.09–1.60)	0.0058
Women (<i>n</i> = 580)	125	93.5	1.34 (1.11–1.59)	0.0021
Cause-specific mortality (ICD chapters)				
ICD-10 chapter 9, circulatory disease	93	69.3	1.34 (1.08–1.64)	0.0077
ICD-10 chapter 10, respiratory disease	14	10.7	1.31 (0.71–2.19)	0.39
Cause-specific mortality (specific causes)				
Ischemic heart disease	36	33.2	1.08 (0.76–1.50)	0.68
Cerebrovascular disease	25	15.3	1.63 (1.06–2.41)	0.028
Malignant neoplasms	49	50.6	0.97 (0.72–1.28)	0.90

CI, confidence interval; SMR, standardized mortality ratio.

Supplementary data

This is linked to the online version of this erratum at <https://doi.org/10.1530/EJE-18-0015e>.