EP-727 “Pituitary clinical”

The Impact of Diabetes Mellitus on the Survival of Patients with Acromegaly

Wen-Ko Chiou[1], Szu-Tah Chen[2], Feng-Hsuan Liu[2], Chen-Nen Chang[3], Ming-Hsu Wang[1], and Jen-Der Lin[2]
[1]Department of Industrial Design, Healthy Aging Research Center, Chang Gung University, Taoyuan Hsien, Taiwan
[2]Division of Endocrinology and Metabolism, Department of Internal Medicine, Chang Gung Memorial Hospital, Chang Gung University, College of Medicine, Taoyuan Hsien, Taiwan
[3]Department of Neurosurgery, Chang Gung Memorial Hospital and Chang Gung University, College of Medicine, Kweishan, Taoyuan Hsien, Taiwan

Aims and Methods

An increased risk of mortality in patients with uncontrolled acromegaly has been reported in several studies. We aimed to assess the impact of co-morbidities on the survival of patients with acromegaly after long-term treatment and follow-up.
A retrospective analysis was performed for 285 patients with active acromegaly who were admitted to the Chang Gung Memorial Hospital, Taiwan between 1978 and 2012.

Table 1.
Clinical features of acromegalic patients in DM and non-DM

Parameter (Number)	DM (106)		Non-DM (106)		Odds ratio[95% CI]
Mean age [Median]	47.7 ± 1.1 [47.4]		47.3 ±0.9 [45.8]		1.00 [0.98,1.03]
Female	55 (51.9%)		60 (56.6%)		0.83 [0.48,1.42]
Clinical features					
Increased acro-growth	96	90.6%	101	95.3%	0.48 [0.16,1.44]
Goiter	49	46.2%	34	32.1%	1.82 [1.04,3.18]*
Headache	42	39.6%	27	25.5%	1.92 [1.07,3.45]*
Osteoarthritis	35	33%	41	38.7%	0.78 [0.45,1.37]
Hypertension	46	43.9%	41	38.7%	1.22 [0.70,2.10]
Gonad dysfunction	28	26.4%	33	31.1%	0.79 [0.44,1.44]
– Amenorrhea	22	20.8%	26	24.5%	0.81 [0.42,1.54]
– Impotency	6	5.7%	7	6.6%	0.85 [0.28,2.61]
Visual impaired	26	24.5%	21	19.8%	1.32 [0.69,2.52]
Carpal tunnel syndrome	25	23.6%	21	19.8%	1.25 [0.65,2.41]
Galactorrhea	2	1.9%	5	4.7%	0.39 [0.07,2.05]
Coronary artery disease	8	7.5%	5	4.7%	1.65 [0.52,5.22]
No surgical treatment	23	21.7%	17	16.0%	1.45 [0.72,2.91]
GH/IGF1 controlled	56	53.8%	56	52.8%	1.04 [0.61,1.79]
Malignancy diagnosed	14	13.2%	4	3.8%	3.88 [1.23,12.21]*
Hypopituitarism	23	27.1%	22	20.8%	0.94 [0.48,1.88]
Survival	92	86.8%	102	96.2%	0.26 [0.08,0.81]*
Follow-up period (year)	15.4 ± 0.9 [14.2]		13.5 ±0.7 [12.8]		1.03 [0.99,1.07]

Mean ± SE [median]; *: P<0.05.

Table 2.
Characteristics of acromegalic patients in mortality and survival groups

Parameter (Number)	Mortality (21)		Survival (264)		Odds ratio[95% CI]
§Mean age [medium]	49.8 ± 3.2 [51.4]		42.9 ± 0.8 [42.9]		0.96 [0.93,0.99]*
Female (%)	12 (57.1%)		138 (51.7%)		0.81 [0.33,1.99]
DM	14	66.7%	93	34.8%	0.27 [0.10,0.69]**
Hypertension	7	33.3%	92	34.5%	1.05 [0.41,2.70]
Gonad dysfunction	8	38.1%	59	22.1%	0.47 [0.19,1.18]
Coronary artery disease	3	14.3%	11	4.1%	0.26 [0.07,1.02]*
No surgical treatment	6	28.6%	39	14.6%	0.43 [0.16,1.19]
Malignancy diagnosed	7	33.3%	14	5.2%	0.11 [0.04,0.32]**
Hypopituitarism	2	9.5%	74	34.1%	2.79 [0.60,12.92]
GH (at diagnosis)	38.6 ± 7.0 [27]		43.2 ± 4.2 [26]		1.00 [0.99,1.01]
GH (last data)	12.0 ± 3.0 [8.8]		8.3 ± 1.3 [1.8]		0.99 [0.98,1.01]
IGF1 (at diagnosis)	740.0 ± 77.5 [817]		926.7 ± 86.32 [799.5]		1.00 [1.00,1.01]
IGF1 (last data)	729.0 ± 88.5 [817]		385.1 ± 20.9 [307.4]		1.00 [0.99,1.00]
GH/IGF1 controlled	6	28.6%	156	59.8%	0.29 [0.12,0.78]**
Follow-up period (year)	7.2 ± 1.3 [7.1]		15.9 ± 0.6 [14.5]		1.18 [1.08,1.30]**

§Mean age: mean ± SE [median]; *: P<0.05; **: P<0.01.

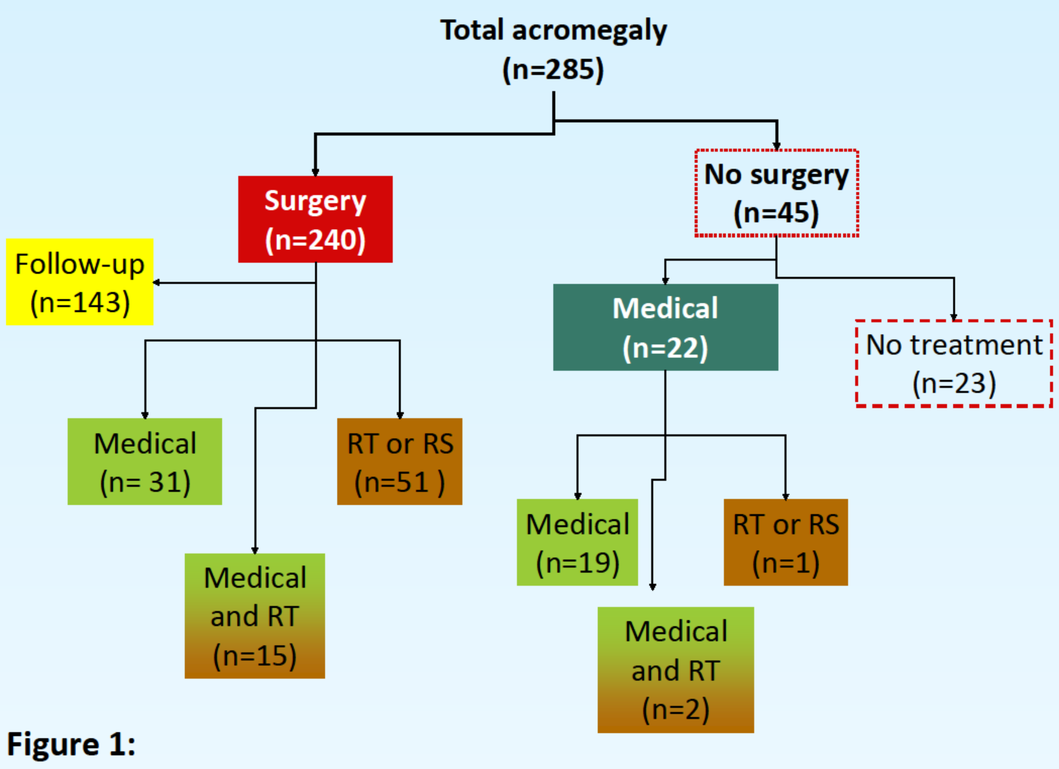

Figure 1:

Flow-chart summarizing total acromegaly cases and different therapeutic modalities of patients.

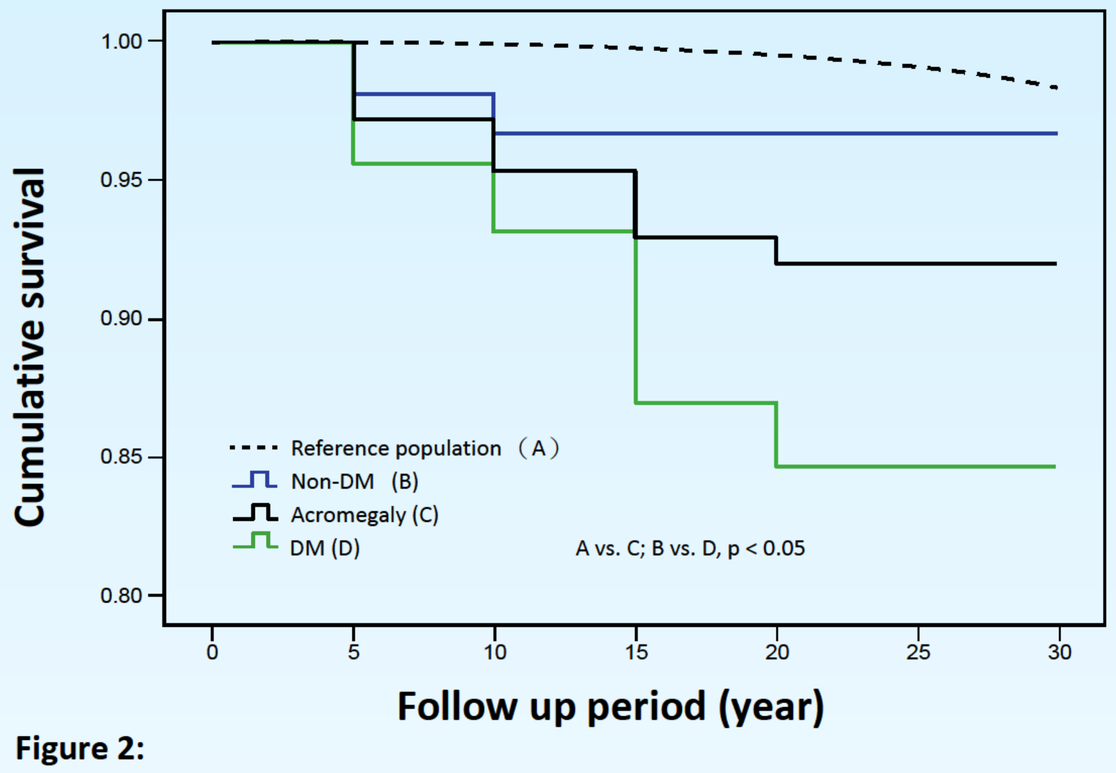

Figure 2:

Cumulative survival curves for total acromegaly cases (C), acromegaly with (D) or without (B) diabetes mellitus, and a control group (A) corresponding to the general population of Taiwan.

Results and Conclusions

Figure 1 illustrates flow-chart summarizing total acromegaly cases and different therapeutic modalities of patients. Of these patients, 106 (37.2%) were diagnosed with diabetes mellitus (DM). During the follow-up period, 21 cases of histological proved malignant in acromegalic patients, and DM with acromegaly had a higher incidence of malignancy (13.2% vs. 3.8%; $p < 0.01$) (Table 1). The 5-, 10-, and 20-year survival rates were 93.1%, 86.9%, and 84.7% for the DM group, respectively, and 96.7%, 96.7%, and 96.7% for the non-DM group, respectively

(Figure 2). After a mean follow-up of 15.1 ± 0.6 years, age, DM, coronary heart disease, and malignancy were found to be significant factors of mortality. Control of growth hormone and IGF-1 levels also conferred a marginal survival benefit (Table 2).
DM and malignancy significantly influence the survival of patients with acromegaly; thus, these patients need close follow-up and appropriate therapy.

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Jen-Der Lin
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