Endocrine Abstracts

20th European Congress of Endocrinology
19–22 May 2018

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S Duran MG
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F Fell MK
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R Feelders The Netherlands
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B Jarnab Poland
D Jeavon Slovakia
M Jorda
A Kabbeek Netherlands
G Kaldis Greece
A Karlsson Sweden
M Keil USA
F Kelestimur Turkey
R Kineman USA
M Korboten UK
B Kos-Kudla Poland
S Krone UK
M Kreck Czech Rep
H Krude Germany
M Luan Germany
P Lukatos Hungary
E Lalli
J Laven The Netherlands
G Lawery UK
T Links The Netherlands
P Lips Netherlands
S Liubaka UK
M Lopez Spain
A Luher Austria
C Luiz Boguszevski Brazil
R M Luque Spain
M Lustor Germany
D Macic Serbia
A Maggi Italy
M Maggi Italy
M Mannelli Italy
F Mantiero Italy
JP Martinez-Barbera
J Maumiquil
G Mastorakos Greece
D Mauricio
C McCabe UK
R Mitchell UK
J Mittag
L Morris-Papamnen Finland
N Morton UK
A Muhlerje UK
E Nagy Hungary
J Newell-Price UK
B Obermayer-Pietzch Austria
P Olivera Portugal
U Pajoto Italy
S Papopoulos Netherlands
R Peters The Netherlands
L Persani Italy
M Pfleger Slovenia
P Pfuggar Germany
V Pirags Latvia
M Poitanen Finland
D Power Portugal
V Presto France
M Puig Domingo Spain
S Radian UK
N Rahman Finland
B Rainey USA
E Raipert-De Myers Denmark
M Ravert France
M Reinsiek Germany
J Reveror
S Race UK
G Reinosojlaquaire
M Robledo Spain
P Rodier France
H Romijn The Netherlands
C Ronchi Italy
G P Rossi
M Ruchda Poland
E Rutter Belgium
P Saunders UK
S Schmid Germany
P Scholfski Belgium
J Schooph Germany
R Sempke UK
M Simoni Italy
U Smith Sweden
A Spola
G Stalia Germany
C Stratiakis USA
T Tankoova Bulgaria
M Tema-Semper
M Terzo
M Theodoropoulos Germany
C Thompson Ireland
P Thompson UK
V Tillmanns Estonia
M Toth Hungary
S Tsaparikis Greece
A Tsipas Greece
E Valassi Spain
E van den Akker Netherlands
A van der Klauw UK
A J van der Lelj Netherlands
J van Eck The Netherlands
W van Hal Belgium
L van Rossum Netherlands
B Verges France
J Visser The Netherlands
P Viti Italy
V Volke Estonia
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Z Wu Germany
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## CONTENTS

### 20th European Congress of Endocrinology 2018

#### PRIZE LECTURES AND BIOGRAPHICAL NOTES
- The European Journal of Endocrinology Prize Lecture .............................................. EJE1
- The Geoffrey Harris Prize Lecture ........................................................................... GH1
- European Hormone Medal Lecture ........................................................................ EHM1
- Clinical Endocrinology Trust Lecture ................................................................... CET1

#### PLENARY LECTURES
- Contraception: Past and future .............................................................................. PL1
- Bone regulates the Brain ......................................................................................... PL2
- The wonder world of GnRH neurons ..................................................................... PL3
- The Retina as a Window for Exploring the Brain in Diabetes ............................... PL4
- The link between insulin and fatty liver ................................................................ PL5
- Does therapy for thyroid dysfunction decrease mortality? ................................. PL6
- Metabolic control of longevity .............................................................................. PL7

#### SYMPOSIA
- Predicting events in autoimmune thyroid disease ............................................... S1.1–S1.3
- Salt & Sweet ........................................................................................................ S2.1–S2.3
- Bile Acid & Microbiota *(Endorsed by Endocrine Connections)* .......................... S3.1–S3.3
- Environmental effects on endocrine functions ..................................................... S4.1–S4.3
- The role of sperm epigenome in fertility and inheritance .................................. S5.1–S5.3
- Precision Medicine for diabetes *(Endorsed by the European Journal of Endocrinology)* .......................................................... S6.1–S6.3
- Expanding the spectrum of thyroid hormone use *(Endorsed by the European Journal of Endocrinology)* .......................... S7.1–S7.3
- Bone fragility – from bench to clinic ................................................................. S8.1–S8.3
- EAA /ESE Session: Male gonadal function versus general health and vice versa S9.1–S9.3
- Hot topics in NETs ............................................................................................. S10.1–S10.3
- Novel aspects of Craniopharyngioma .................................................................. S11.1–S11.3
- Why do fractures occur in endocrine disorders, and how should they be handled? S12.1–S12.3
- The colours of fat .............................................................................................. S13.1–S13.3
- Neuroendocrine basis of reproductive disorders ................................................ S14.1–S14.3
- EYES: New aspects in the study of neuroendocrine diseases .............................. S15.1–S15.6
- Changing practice in the management of thyroid neoplasms ............................ S16.1–S16.3
- Recent advances in Primary Adrenal Macronodular Hyperplasia ..................... S17.1–S17.3
- Borderline testosterone and metabolic outcomes among sexes: clinical relevance S18.1–S18.3
- New Aspects of Pituitary Regulation .................................................................. S19.1–S19.3
- All you need to know about lipodystrophy *(Endorsed by Endocrine Connections)* S20.1–S20.3
- The Dance of Adrenal and Gonads *(Endorsed by Endocrine Connections)* .... S21.1–S21.3
- The fatty bone ................................................................................................... S22.1–S22.3
- Pre-diabetes ......................................................................................................... S23.1–S23.3
- Ups and downs of hypothalmo-pituitary hormones ........................................... S24.1–S24.3
- Late Breaking .................................................................................................... S25.1–S25.3
- Cortisol: Too much of a Good Thing ................................................................ S26.1–S26.3
- Emerging treatments in osteoporosis ................................................................ S27.1–S27.3
- Endocrinology Meets Immunology ................................................................... S28.1–S28.3
- Thyroid hormone action: regulation and clinical implications .......................... S29.1–S29.3
- Disorders of Sexual Development (DSD) .......................................................... S30.1–S30.3
- Special Symposium: Bone & Vitamin D *(Endorsed by Endocrine Connections)* SS1.1–SS1.3
- Guidelines: ESE - ENSAT guidelines on the management of adrenocortical carcinoma in adults GL1.1–GL1.6
- Endo-ERN: concrete examples of added value for patient care ....................... ERN1.1–ERN1.3

*Endocrine Abstracts (2018) Vol 56*
### POSTER PRESENTATIONS: ENVIRONMENT, SOCIETY AND GOVERNANCE

<table>
<thead>
<tr>
<th>Topic</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes therapy</td>
<td>P613</td>
</tr>
<tr>
<td>Endocrine Disruptors</td>
<td>P614–P615</td>
</tr>
<tr>
<td>Neuroendocrinology</td>
<td>P616</td>
</tr>
<tr>
<td>Pituitary - Clinical</td>
<td>P617</td>
</tr>
<tr>
<td>Thyroid (non-cancer)</td>
<td>P618–P620</td>
</tr>
</tbody>
</table>

### POSTER PRESENTATIONS: INTERDISCIPLINARY ENDOCRINOLOGY

<table>
<thead>
<tr>
<th>Topic</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adrenal cortex (to include Cushing's)</td>
<td>P621–P622</td>
</tr>
<tr>
<td>Calcium &amp; Vitamin D metabolism</td>
<td>P623</td>
</tr>
<tr>
<td>Cardiovascular Endocrinology and Lipid Metabolism</td>
<td>P624–P629</td>
</tr>
<tr>
<td>Clinical case reports - Pituitary/Adrenal</td>
<td>P630–P631</td>
</tr>
<tr>
<td>Clinical case reports - Thyroid/Others</td>
<td>P632–P636</td>
</tr>
<tr>
<td>Developmental endocrinology</td>
<td>P637</td>
</tr>
<tr>
<td>Diabetes (to include epidemiology, pathophysiology)</td>
<td>P638–P642</td>
</tr>
<tr>
<td>Endocrine Disruptors</td>
<td>P643–P645</td>
</tr>
<tr>
<td>Endocrine tumours and neoplasia</td>
<td>P646–P656</td>
</tr>
<tr>
<td>Female Reproduction</td>
<td>P657–P662</td>
</tr>
<tr>
<td>Growth hormone IGF axis - basic</td>
<td>P663–P665</td>
</tr>
<tr>
<td>Neuroendocrinology</td>
<td>P666–P672</td>
</tr>
<tr>
<td>Nuclear receptors and Signal transduction</td>
<td>P673–P675</td>
</tr>
<tr>
<td>Obesity</td>
<td>P676</td>
</tr>
<tr>
<td>Paediatric endocrinology</td>
<td>P677–P679</td>
</tr>
<tr>
<td>Steroid metabolism + action</td>
<td>P680–P682</td>
</tr>
<tr>
<td>Thyroid (non-cancer)</td>
<td>P683–P684</td>
</tr>
<tr>
<td>Thyroid cancer</td>
<td>P685</td>
</tr>
</tbody>
</table>

### POSTER PRESENTATIONS: PITUITARY AND NEUROENDOCRINOLOGY

<table>
<thead>
<tr>
<th>Topic</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adrenal cortex (to include Cushing's)</td>
<td>P686–P689</td>
</tr>
<tr>
<td>Clinical case reports - Pituitary/Adrenal</td>
<td>P690–P727</td>
</tr>
<tr>
<td>Developmental endocrinology</td>
<td>P728</td>
</tr>
<tr>
<td>Endocrine Nursing</td>
<td>P729</td>
</tr>
<tr>
<td>Endocrine tumours and neoplasia</td>
<td>P730–P736</td>
</tr>
<tr>
<td>Female Reproduction</td>
<td>P737–P738</td>
</tr>
<tr>
<td>Growth hormone IGF axis - basic</td>
<td>P739–P742</td>
</tr>
<tr>
<td>Neuroendocrinology</td>
<td>P743–P770</td>
</tr>
<tr>
<td>Paediatric endocrinology</td>
<td>P771–P775</td>
</tr>
<tr>
<td>Pituitary - Basic</td>
<td>P776–P787</td>
</tr>
<tr>
<td>Pituitary - Clinical</td>
<td>P788–P888</td>
</tr>
</tbody>
</table>

### POSTER PRESENTATIONS: REPRODUCTIVE ENDOCRINOLOGY

<table>
<thead>
<tr>
<th>Topic</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adrenal cortex (to include Cushing's)</td>
<td>P889</td>
</tr>
<tr>
<td>Bone &amp; Osteoporosis</td>
<td>P890</td>
</tr>
<tr>
<td>Cardiovascular Endocrinology and Lipid Metabolism</td>
<td>P891–P892</td>
</tr>
<tr>
<td>Clinical case reports - Thyroid/Others</td>
<td>P893–P898</td>
</tr>
<tr>
<td>Developmental endocrinology</td>
<td>P899–P901</td>
</tr>
<tr>
<td>Diabetes (to include epidemiology, pathophysiology)</td>
<td>P902</td>
</tr>
<tr>
<td>Endocrine Disruptors</td>
<td>P903–P907</td>
</tr>
<tr>
<td>Endocrine Nursing</td>
<td>P908–P909</td>
</tr>
<tr>
<td>Endocrine tumours and neoplasia</td>
<td>P910</td>
</tr>
<tr>
<td>Female Reproduction</td>
<td>P911–P958</td>
</tr>
<tr>
<td>Male Reproduction</td>
<td>P959–P975</td>
</tr>
<tr>
<td>Neuroendocrinology</td>
<td>P976</td>
</tr>
<tr>
<td>Paediatric endocrinology</td>
<td>P977–P979</td>
</tr>
<tr>
<td>Pituitary - Basic</td>
<td>P980</td>
</tr>
</tbody>
</table>
Poster Presentations: Calcium and Bone
Epidemiology of primary hyperparathyroidism in Santander, Spain
Laura Ramos, Pedro Muñoz, Maria Piedra, Luis Vazquez & Jose Antonio Amado
1 Marqués de Valdecilla Hospital, Santander, Spain; 2 Servicio Cantabro de Salud, Santander, Spain.

Background and aims
Primary hyperparathyroidism (PHPT) is a common endocrine disorder with different epidemiological patterns among countries. The incidence of PHPT is unknown in Spain. The aim of our study is to assess the prevalence and incidence of diagnosed PHPT in adults between 1970 and 2014 in Santander, a population of 290,000 inhabitants, located in the north of Spain.

Subjects and methods
All patients diagnosed with primary hyperparathyroidism from 1970 to 2014 were included. PHPT was diagnosed when persistent hypercalcemia occurred with the presence of elevated or inappropriately normal parathyroid hormone levels. Prevalence and incidence density adjusted for age and sex were calculated for each 5-year period.

Results
We identified 709 patients (82.3% females) diagnosed with PHPT by the end of 2014. Females were older than males at baseline (median age 67.6 years (57.8–75.9) and 63.7 years (52.1–74.2) respectively) (P <0.05). The prevalence of PHPT was higher in females, and the female preponderance increased with age. In the mid-1990s the incidence rate in women was 3.72/100,000 person-years and doubled in the period 1995–1999, with an incidence rate of 8.38/100,000 person-years. Incidence increased in the following years, and in the period from 2005 to 2009, it doubled again from 12.08/100,000 person-years in 2000 to 2004 to a maximum level of 24.52/100,000 person-years in the period from 2005 to 2009. In the last period of study, from 2010 to 2014, the incidence in women decreased up to 21.44/100,000 person-years. The increased incidence is progressive and less flashy in males than females. The incidence in the period from 1995 to 1999 was 2.75/100,000 person-years and doubled in the period from 2010 to 2014, becoming 5.20/100,000 person-years. The prevalence of diagnosed PHPT in Santander increased from 0.10 per 1000 population in the period from 1984 to 1988 to 0.38 per 1000 population in the period from 2010 to 2014.

Conclusions
The incidence of PHPT in Santander continues its remarkable rise. The incidence of diagnosis is greater in females than in males and increases with age. The incidence in the period from 1995 to 1999 was 2.75/100,000 person-years and doubled in the period from 2010 to 2014, becoming 5.20/100,000 person-years. The prevalence of diagnosed PHPT in Santander increased from 0.10 per 1000 population in the period from 1984 to 1988 to 0.38 per 1000 population in the period from 2010 to 2014.

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Reliability of serum Calcium to Phosphorus (Ca/P) ratio as an accurate and inexpensive tool to define disorders of Ca-P metabolism: preliminary data
Sara De Vincenzi, Maria Laura Monzani, Elda Kara, Giovanni Guarraldi, Vincenzo Rochrini & Bruno Madero
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Introduction
Parathyroid carcinoma (PCa) is a rare presentation of primary hyperparathyroidism (PHPT), accounting for less than 1% of cases. Differentiating parathyroid cancer from benign hyperparathyroidism is clinically challenging. Some previous work suggests that there is a paraneoplastic hCG production in parathyroid cancer (Stock et al 1987, Rubin et al 2008). In this study, we aimed to investigate whether the hCG β-core fragment and free β-subunit are useful markers of PCa.

Material and methods
We studied a series of eight patients suffering from advanced PCa, referred to the CHU de Liege. A group of 20 PHPT patients and 25 patients with secondary hyperparathyroidism (SHP) due to chronic renal failure were used as controls. Limits of hCG detection and quantification are <0.1 and <0.6 mU/mL. In non pregnant and postmenopausal women and in men, hCG (p95) is <1.5 (3.3), <7 mU/mL (8.3) and <2 (2.6) mU/mL, respectively.

Results
The 8 PCa patients (3 women) presented high serum hCG values at 1.29, 3.46, 5.7, 24.2, 31.2, 34.1, 36.5 and 164 UI/L. Values of 1.29 and 3.46 were obtained in 2 postmenopausal women. The lowest value was presented by the only still alive patient who had hormonal and biochemical normalization and tumor shrinkage induced by anti-parathyroid hormone immunotherapy (Betea et al. 2004). In cancer patients, there was a significant correlation (r=0.786; P<0.05) between hCG and PTH whereas median hCG (5.7 UI/L) was significantly higher than in PHPT (1.25 UI/L) and SHP (0.97 UI/L). hCG test sensitivity was 75% and specificity was 94% to detect parathyroid cancer, with a cut-off of hCG of more than 5.68 UI/L.

Conclusions
These results support the hypothesis that hCG might have the potential to discriminate between parathyroid adenomas and carcinomas, with a sensitivity of 75% and a specificity of 94%. The only patient still alive who underwent a PTH immunotherapy, presented the lowest hCG values. If hCG could be predictive of PCa survival needs to be studied in a larger series of patients. A future area of research revealed by this data is to test hCG immunotherapy in parathyroid cancer.

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Human Chorionic Gonadotrophin (hCG) as a diagnostic test to differentiate between Parathyroid Carcinoma, Primary Benign Hyperparathyroidism and Secondary Hyperparathyroidism.
Hernan Valdes-Socin, Daniela Betea, Adrian Daly, Pierre Delanaye, Jean-Claude Souberbielle, Albert Beckers & Etiennne Cavalier
1 CHU de Liege, Liege, Belgium; 2 CHU Necker, Paris, France.

Introduction
Parathyroid carcinoma (PCa) is a rare presentation of primary hyperparathyroidism (PHPT), accounting for less than 1% of cases. Differentiating parathyroid cancer from benign hyperparathyroidism is clinically challenging. Some previous work suggests that there is a paraneoplastic hCG production in parathyroid cancer (Stock et al 1987, Rubin et al 2008). In this study, we aimed to investigate whether the hCG β-core fragment and free β-subunit are useful markers of PCa.

Material and methods
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Endocrine Abstracts (2018) Vol 56
The prevalence of SHPT both preoperatively and after obesity surgery.

Improved vitamin D and calcium status may potentially reduce increased over time. SHPT was higher in vitamin D deficiency and with iCa levels.

Background

Secondary hyperparathyroidism (SHPT) is common in obesity, and a concern after obesity surgery due to negative impact on bone. Longitudinal data is sparse, and relationships with vitamin D and calcium levels are unclear. We studied the prevalence of SHPT over five years after Roux-en-Y gastric bypass (RYGB) and investigated whether SHPT was associated with serum levels of 25-hydroxyvitamin D (25(OH)D) and ionized calcium (iCa).

Methods

347 of 568 (61%) patients attending a 5-year follow-up visit after a RYGB at Uludag University Hospital in the years 2004-2008 were eligible for study inclusion. We excluded 14 patients with missing data, four with primary hyperparathyroidism and 10 with elevated serum creatinine. We defined SHPT as PTH > 7.0 pmol/l and vitamin D deficiency as 25(OH)D < 50 nmol/l. Low iCa refers to serum levels < 1.21 mmol/l (lower tertile of reference range or below). Substitution of vitamin D3 (1000 IE/day) and calcium carbonate (1000 mg/day) was recommended.

Results

Among the 319 included patients (230 women) the prevalence of SHPT was 32% before surgery, while the prevalence was 18%, 24%, 28% and 35% after a half, one, two and five years. The proportion with serum iCa in the lower range was: 24% preoperatively, and 29%, 35%, 44% and 49% at a half, one, two and five years. Table 1 illustrates the prevalence of SHPT by serum vitamin D and calcium levels (illustrates P < 0.001 between subgroups).

Discussion

The prevalence of SHPT decreased the first half year after RYGB and thereafter to normalize within time. Serum Ca levels

P218

Prevalence and clinico-epidemiology of vitamin D deficiency in patients with type 2 diabetes mellitus and hypertension – a Pan-India study

Deshmukh Clinic and Research Centre, Pune, India; 3Deshmukh Clinic and Research Centre, Pune, India; 4RM Diabetes Educational and Research Foundation, Chennai, India; 5Only Research, Gwahati, India; 6Abbott India Ltd, Mumbai, India.

Introduction

Vitamin D (vitD) deficiency is a worldwide epidemic health problem, with a prevalence of about 70–100% in general Indian population. The object of this cross-sectional, clinico-epidemiological, Pan-India study was to evaluate the prevalence of vitD deficiency in patients with Type-2 diabetes mellitus (T2DM) or hypertension (HT) or both T2DM and HT and to understand the management practices in Indian real-world setting.

Methods

Adults with a diagnosis of T2DM or HT or both (established/newly diagnosed), visiting physician for routine check-up, were enrolled. Percentage of patients with vitD deficiency in those with T2DM/HT or T2DM+HT and prevailing management practices were assessed. VitD insufficiency and deficiency was defined as serum 25(OH)D levels 21–29 ng/ml and <20 ng/ml, respectively.

Results

A total of 1501 (99.5%) patients completed the study (T2DM:500 [99.2%]; hypertension:499 [99.6%]; both T2DM and HT: 502 [99.8%]). Mean (±s.e.) age of the study population was 52.9 ± 12.49 years. Mean age at diagnosis of vitD deficiency was 52.5 ± 10.77 years; mean vitD level at the time of diagnosis was 16.9 ± 12.78 nmol/l. Overall prevalence of patients with low vitD levels (vitD deficiency and insufficiency) was 1257 (83.7%); 1231 (82%) were newly diagnosed cases. Out of 1257 (83.7%) patients with low vitD levels, 60.9% patients had vitD deficiency and 22.9% patients had vitD insufficiency. Prevalence of low vitD levels amongst patients with T2DM (n = 500) was 84.2%, 82.6% and 84.5%, respectively. Out of 1257 patients with low level of vitD, 84.8% received vitD supplementation. Preferred dose of vitD was 60,000IU (70%); route of administration was oral for majority of patients (79.6%). Preferred frequency of hypercalcemia and persistent hyperparathyroidism (PHPT) in recipients with normal graft function. Reported persistent hypercalcemia prevalence varies in wide range between 5% and 66%. This huge variation might be explained with different diagnostic criteria, heterogenic recipient population and variations in renal replacement vintage. We aimed to evaluate the prevalence of hypercalcemia and PHPT among recipients after successful kidney transplantation in our center.

Methods

We performed a retrospective study involving a total 391 (224 males, 40.6 ± 11.9 years) adult kidney transplant recipients between January 2008 and December 2014. Recipients who were underwent parathyroidectomy before transplantation were excluded. Demographic and laboratory data of 307 recipients who were followed up at least 12 months were obtained by review of electronic file system. PHPT was defined as serum corrected Ca level > 10.2 mg/dl (at least twice in a 6 month period) and PTH > 150 pmol/l at 6th month of transplantation. Serum creatinine, Ca levels at pre- and post-transplant 1st, 3rd, 6th, 12th months, PTH levels at pre- and post-transplant 6th, 12th months of recipients were recorded.

Results

A total 307 recipients (150 deceased, 157 living donor; 175 male, 132 female; mean age 39.4 ± 11.4 years) were enrolled the study. The mean duration of renal replacement treatment was 75.1 ± 3.3 months. Mean serum Ca levels before transplantation and at 1st, 3rd, 6th, 12th months of transplantation were 9.3 ± 0.8 mg/dl, 9.3 ± 0.7 mg/dl, 9.6 ± 0.7 mg/dl, 9.7 ± 0.7 mg/dl; and prevalence of hypercalcemia (> 10.2 mg/dl) at 1st, 3rd, 6th, 12th months of transplantation were 10.8%, 21.2%, 21.2% and 21.2%, respectively. Mean serum PTH levels before transplantation and at 6th, and 12th, 12 months of transplantation (> 150 pg/ml) were 526.2 ± 474.9 pg/ml, 237 ± 334 pg/ml, 215 ± 236.9 pg/ml, and prevalence of hyperparathyroidism at 6th, 12th months of transplantation were 57.1% and 52.3%, respectively. Conclusion

PHT levels decreased and Ca levels remained stable after transplantation within 12 months in our study. Although prevalence of hyperparathyroidism was high, persistent hypercalcemia affected fewer recipients.

P217

The frequencies of persistent hyperparathyroidism and hypercalcemia after kidney transplantation: a single-center experience

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Bone mineral disorders usually resolve after successful kidney transplantation. Serum calcium (Ca), phosphorus (P) and parathyroid hormone (PTH) levels tend to normalize within time. Serum Ca levels > 10.2 mg/dl, and PTH levels > 150 pg/ml at 6th–12th months of transplantation is defined as persistent hyperparathyroidism and hypercalcemia.

Discussion

The prevalence of SHPT decreased the first half year after RYGB and thereafter increased over time. SHPT was higher in vitamin D deficiency and with iCa levels in the lower range. Improved vitamin D and calcium status may potentially reduce the prevalence of SHPT both preoperatively and after obesity surgery.

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Author Index

Álvarez Escolá, C GP11
Álvarez Hernández, J GP145
Álvarez Segurola, C P50
Álvarez, V GP231
Álvarez Váz, A GP67
Álvarez-de Frutos, V P334
Álvarez-Elorza, C GP199
Ávila Mendoza, J P778
Ávila-Rubio, V P310,
P383
Aancute, A P185
Aaseth, E P216
Aasheim, E P216
Abad González, AL GP212
Abarba, A OC2.1
Abbas, A P44
Abbas, W EP111
Abd e-Imohsen, E P1069
Abd El-salam, RF P335
Abdel El Kawi, N EP154
Abdelhamid, A GP250
Abdelhedi, F EP103
Abdelmoula, J P295
Abdel Salam, M P220
Abdi, A EP97, EP98
Abduljabbar, R P1014
Abdulladjanova, N GP112
Abduvaliev, A P565
Abe, M P743
Aberer, F P308
Aibobo, I GP176
Abid, K P624, P648
Abid, m P1109,
P144
Abid, N P343
Aboeiyazed, S P220
Aboishava, L GP91
Aboist-Apeaudou, K P366
Abrahamsen, B GP127
Abraitiene, A EP100,
EP101
Abreu, A P993
Abreu Lomba, A EP187,
P38
Abrosimov, A P1134
Abuin, J EP31, P805,
P836
Abusahlamin, H P358
Abusoglu, S P350, P625, P988
Abuzahah, MJ P849
Acedo, R P1203
Ach, K EP153
Ach, K P162, P409, P791,
P802, P87
Ach, MT P791
Ach, T P162, P409,
P802
Acosta Calero, C EP28
Acosta-Calero, C EP69,
P18, P262, P293, P76,
P79
Adas, M P1042
Adamcová, K P932
Adamidou, F GP192,
P689, P868
Adamo, M OC6.2
Adamopoulos, C GP87
Adamski, J P1040
Adank, Muriel A P955
Adelantado, JM P776
Adesanya, O P141
Adzeriho, I P298
Afanasiev, D GP173,
P352
Afonso, C P728
Afonso Martins, JL GP16
Agarwal, A P210
Agarwal, a P6
Agarwal, g P6
Agate, L P1154
Agea Díaz, L P147
Agea, L P848
Aggelis, C GP33
Agha, A EP116, P811
Aghajanian, Y EP66,
P979
Agic, S P502
Aglaia, Z P20
Agnarsson, BA GP28
Agnew, L P969
Agorogiannis, G OC10.2
Agostini, L GP114
Agrawal, D P218
Agreda, J P138
Aguado García, R GP258
Aguier Moreira, C P199
Aguilar Diosdado, M
GP14, P526, P549,
P567, P639
Aguilar-Soler, G GP150
Aguilera Venegas, IG P330
Aguilas Diosdado, M
P568
Aguirre Moreno, N P49
Aguirre, M GP237
Aguirre Moreno, N P1166
Aguirre, N P1078, P1192,
P740
Ahmad, A P1014
Ahmad, I P668
Ahmad, MS P669
Ahmed, A P55
Ahmed, F GP175
Ahmed, H P332
Ahmed, I P669
Ahmed, L P1119
Ahmed, M P395
Ahmed, MS P668
Ahmed, SF P677
Ahmetov, I EP396, P504
Ahn, C GP107, P527
Ahn, CW P296, P359,
P360, P560
Ahn, KJ P501
Aida, C P408
Aimaretti, G P616
Ainsworth, M P306
Aissiouli, D P466
Ajdžanović, V GP246
Ajdžanovíc, V P621, P821
Ajill, r P144
Ak Sivrikoz, I P148
Akalin, A P1150,
P148
Akama, Y EP3
Akarsu, c P1022
Akay, F P1016
Akbay, E EP477, P826
Akcicek, F P289
Akgür, S GP75, P217,
P320, P434, P442,
P641, P848, P991
Akgul, G EP92
Akhmadiev, E EP160,
EP183
Akinci, B P859
Akirov, A GP79
Akkon, T P1064
Akker, S P1160
Akins, O P962
Aksan, S P1085
Aksionava, E EP608
Aktas, N EP50
Aktürk, M P307
Akturk, M P1085, P325,
P467, P711
Akyay, Z GP108
Akyurek, F P625
Al Bashri, S P972
Al Mandhari, A EP99
Al Nasser, A P1107
Alaguney, ES P1150, P22
Al-Alawi, K EP99
Al-Alwan, H EP22, P97
Alba-Loureiro, TC P583
Albani, A GP197
Alberiche, MP P958
Alberiche Ruano, M del P
P1056
Albersen, M P960
Albert Fábregas, L OC14.5
Albert, L P27, P389, P391
Albu, A P123, P90
Albu, A P94
Albuquerquex, L GP208,
P867, P882, P888
Alcaide, C OC3.3
Alcaide-Torres, J P585
Alcaina, Y OC9.1
Alcalde, J P1048
Alchujyian, NP EP66
Alcántara Laguna, M
P1070
Alcántara Laguna, MD
P374
Alcubierre, N GP101
Alcázar Lázaro, V OC1.2
Aldiss, P GP160
Alecric, A EP12
Alejo, A P164, P292
Alejo, M P303
Alejo Ramos, M GP258
Aleksandrov, Y EP162,
P1045
Aleric, I GP39
Alevisaki, M GP264,
P1143
Alevisaki, M P742
Alexander, Y P453, P455
Alexandradi, K GP87,
P141, P142, P143,
P525
Alexiu, F P1102
Aliafih, M P972
Aliafih, MA P640
Alfarro, J GP237
Alfaro Martínez, JG GP13
Alhambra Exposito, MR
P1070, P374

Endocrine Abstracts (2018) Vol 56