

**SRI LANKA MEDICAL ASSOCIATION OF NORTH AMERICA
EASTERN REGION INC.
PRESENTS**

**SLMANA EAST
CHARITY BALL
ANNUAL GENERAL MEETING
&
SCIENTIFIC SESSIONS
ON
NOVEMBER 12TH, 2011**



**NEW YORK HILTON AND TOWERS
1335 Avenue of The Americas New York, NY**

Endocrine and Metabolic Challenges in Baby Boomers

D 109, One Hospital Drive
Columbia, MO 65212

573-268-5123

E-mail : Kurukulasuriyad@health.missouri.edu

Nov 12, 2011



Objectives & Disclosures

- Review - selected perspectives of endocrine & metabolic health in relation to Baby boomers
- Disclosures – None

TROUBLING demographics

- For next 19 years, additional 10,000 Baby Boomers/ **daily** in USA, become **65 yrs** !
- In 2010 T2 DM - 26 million , by 2050 1/3 rd of US population
- 79 million in USA currently have **PRE-Diabetes**
- USA spent 17 % of GDP on health in 2010
- Childhood obesity, T2DM, processed / Na laden/ fatty foods, soda-pop with cheap calories, **rampant and fast-growing across the globe**

Biggy, Easy, Couchy & roundy

- BMI TABLE

	Caucasians	Asians
Normal	< 25	< 23
Overweight	25 –29.9	23 –29.9
Obese	30–39.9	30 –39.9
Morbid Obesity	≥ 40	≥ 40
Super Morbs	> 60	> 60

Morbidity in impending Baby Boomers

- 2007 USA
 - 64% of , 50 - 64 yr olds(pre-boomers),
(35 million people),
 - have **at least one chronic** health condition >
CAD, HTN, DM
 - Geriatric changes start early as 50 yrs age

(Analysis of the Medical Expenditure Panel Survey 2007 by N. Tilipman and B. Sampat of Columbia University for The Commonwealth Fund.)

!

The birds of a feather flock together

- Endocrine and Metabolic problems almost,
“ never occur alone! ”



Boomer metabolic Frailty

- State of reduced physiological reserves associated with increased susceptibility to disability (*William's Text of Endocrinology 11 ed*)
- Boomer's presentation can be **ATYPICAL** - *Fatigue/Lethargy/loss of libido/cyclothymia/social withdrawal*

Biochemical Aging theories that impact Endocrine system

- **1. oxidation by free radicals**
- **2. non-enzymatic glycosylation**
- **3. epigenetic changes such as DNA methylation and histone acetylation**
- **4. widely distributed deterioration of signal transduction efficiency**

Understand Diversity of Metabolic aging

- **Chrono-biologic variability increases**
- **Physiologic/pathologic apoptosis is highly variable**
- **Compliance & response to Rx + dietary manipulation varies widely**

BMR decline in –Boomers and beyond

- **Gradually occurs after 2 nd decade**
- **Multi-factorial - major endocrine contributions from Thyroid , Adrenal**
- **CANNOT totally be explained by sole changes in body composition**
- **lower fat-free mass (FFM) and sarcopenic states aggravates decline and increases mortality**

Normal Aging

- Some hormone secretions **altered** with age, but changes are,
 - much less predictable -andropause
 - not well-defined by age-adjusted normal values. Eg: Hyperparathyroidism, DM 2, hypo/hyperthyroidism
- Some hormone secretion **decreases** with age
 - increased other hormone secretion **may or may not** compensate eg; Testosterone (*decreased secretion, increased LH, reduced metabolism*)

Metabolic aging stages

1. **First change** - progressive loss of reserve capacity
 - basal labs relatively unchanged –FBS
 - compensatory homeostatic attempts occur
 - eg. Drop in Testosterone increases LH
2. **Second change** - reduced adaptability to environment **when stressed**, safety valve fails (greater rise in bld sugar at OGTT)
3. **Final change** – organs fails **at rest** (without been stressed)

Differentiate “normal Aging” from “disease”

- **Normal Aging** - Impaired Homeostasis
- **Disease** - added insult exponentially aggravates homeostasis

Aging with related metabolic ILLNESS

- **highly** prevalent
- occasionally **asymptomatic**
- distinction *very subtle and easily miscalculated*
- does **not** make **therapeutic intervention** mandatory (*Best example* - GH and IGF-1 levels drop dramatically ; despite supplementing GH or IGF-1 does **not** restore rejuvenation)

Altered presentation of Endo disease in elderly - symptoms and signs

- Non-specific > wt loss, fatigue, constipation, depression, weakness
- Psychomotor retardation, Atr Fib, exacerbated existing CHF – **apathetic**
Hyperthyroidism
- Hyperosmotic non-ketotic coma - DM
- Confusion – due to hypercalcemia –
hyperparathyroidism
- Manifestations **altered/masked** by existing co-morbidities/polypharmacy

Easily discernible Endocrine derangements in Boomers

- **Menopause**
- **Apathetic thyrotoxicosis**
- **Hyperosmolar non-ketotic state**

Problem with current

“normal” reference values in boomers

- Age adjusted “normal” ranges rarely available
- “normals” historically calculated for young/middle age
- “normals” more “cross-sectional” vs. Longitudinal (reducing applicability and accuracy)
- “normals” confounded by multiple SICK-elderly in validation cohorts

“Normal range “ Sodium of 145 in the elderly
– “may not reflect normalcy for given patient”

- **Hyponatremia relatively more common in elderly**
 - **occult adreno-cortical insufficiency**
 - **more hypothyroidism, CHF, Cirrhosis, edema states**
 - **high risk of beer drinkers potomania/hyperglycemia**
 - **lower intake from salt poor diets**
 - **tubular conservation of sodium is impaired**
 - **CKD and conditions that predispose to**
SIADH more common
 - **multiple therapeutics including loop diuretics**
Thiazides, Metolazone

“ U-shaped curve” relation for CAD and *ALL-cause mortality* vs. LDL-C

- In the oldest of old , decrease in baseline LDL-C > linked with **increased mortality**
- Exact Threshold for optimal TC or LDL-C in elderly > **undefined**

Statin Rx in seniors -*very controversial*

- Optimum LDL /TG levels **not** clearly defined (ATP 3 gives no special values)
- Multiple confounders + high mortality - preclude accurate conclusions
- Statin Rx - “ NO **age ceiling** “that limits CAD benefits
- Dieting induced wt-loss to reduce lipids – may **increase** mortality
- Therapeutic life style as sole lipid control - practically unachievable

Principles of Rx Geriatric Endo

- **Treatment plan - consider**
 - co-existing illness/meds
 - target organ changes in sensitivity
(WHI – Estrogens had different outcomes for immediate post-menopausal women Vs. Older women)
- **Dosing - adjust to GFR**
- **Start lowest effective dose/go slow > *but go***

Principles of Rx Geri-Endo

- **Review doses frequently** > titrate / taper-off/monitor once therapeutic goals met
- Increase ***concurrent physical and cognitive activity***- to minimize body /mind decline

Bottom line for boomer Metabolic Rx

- EBM for Boomers -therapeutic /healthy life style changes definitely benefit
- Artificial “ hormonal supra-physiological supplementation ” – may do more harm

Supplementation in boomers

- Vit D RDA - **1000-2000 IU** with upper tolerable limit of 4000 IU

(AACE 2011 recommends Vit D levels at 30-50 ng/ml)

- Calcium RDA - **Elemental** calcium – **in divided doses to avoid constipation**

Women > 50 yr = **1200** mg with upper tolerable limit of 2000 mg

Men > 50 yr = **1000** mg with upper tolerable limit of 2000 mg

- Problems - higher risk of kidney stones with higher doses of calcium, dosing needs to be timed separately from other meds

(Source - IOM report + AACE Recommendations 2011)

Endocrinologists solely cannot meet demand

- Demand for Endocrinologists will Exceed Supply
- **Senior endocrinologists** are retiring rapidly -PCP s will have to assume burden
(AAMC Work-Force Study Aug 2011 p. 12)
- Decreasing funding and manpower for allopathic health
- **Rising life expectancy**
-overwhelming rise in > 50 yr (AARP) age
metabolic and endocrine diseases

Potential remedies for Boomer Metabolics in 21st century America + Globe

- Increasing collaboration of Endocrinologists with PCP
- ? ACA act of 2010
- ACO - Accountable Care Organization
- PCMH – Patient Centered Medical Home
- Integrated Metabolic & Dietetic Health Education/Health Literacy/ Preventive Health
- Tele-medicine & Care Coordination
- Health exchanges to incentivize therapeutic behavior
- Medical Foster Home (VA model)
- Global collaboration in taming metabolic disease tide

Acknowledgements

- **Lilamani Romaine Kurukulasuriya MD,FACE**
Associate Professor, Division of Endocrinology, Diabetes & Metabolism, University of Missouri, Columbia, MO 65212
- **Dale Melloway - Internal Medicine Department of IT ,**
University of Missouri at Columbia, MO 65212
- **Diane E Johnson - Chief Librarian, Otto Health Science Library, School of Medicine, University of Missouri at Columbia, MO 65212**

References

- **Hazzard's Geriatric Medicine and Gerontology 6 edition - 2009**
- **Oxford American Handbook of Geriatric Medicine- 2010**
- **American Geriatric Society –Geriatrics at Your Fingertips- 13 th edition 2011**
- **Williams Textbook of Endocrinology – 11 th Ed 2008**
- **DynaMed**
- **UptoDate**

ANKA MEDICAL ASSOCIATION OF NORTH AMERICA
EASTERN REGION INC.
PRESENTS

**SLMANA EAST
CHARITY BALL
ANNUAL GENERAL MEETING
&
SCIENTIFIC SESSIONS
ON
NOVEMBER 12TH, 2011**



NEW YORK HILTON AND TOWERS
1335 Avenue of The Americas New York, NY

Q&A