



## Poly Deprescribing in Older People is Associated with Longstanding Improvement in Clinical Outcomes and Quality of Life

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### Introduction

Inappropriate Medication Use and Polypharmacy (IMUP) have become a leading global epidemic particularly in older people [1-6]. Apart from preventive means (better education) which will take years to implement and does not seem applicable at the moment, the best way to reduce the negative clinical and economical outcomes of IMUP is rational deprescribing. I hereby present 2 case reports of older women with polypharmacy in whom I've performed poly deprescribing as part of Comprehensive Geriatric Assessment (CGA). Both patients were participants of a longitudinal research that has been approved by the ethical committee of the Shoham Geriatric Medical Center Pardes-Hana, a later by the ethical committee of the Wolfson Medical Center, Holon, Israel. Rational deprescribing was based on the Garfinkel GPGP method and algorithm that combines Evidence-Based Medicine (EBM, when present), clinical judgment and above all patient/family preferences (and consent). The method has been proven to be efficacious and safe in both nursing departments and in the community [1,7,8]. In both women, there was a significant improvement in clinical outcomes including functional. Mental and/or cognitive status and the improvement persisted for several years. Applying the Garfinkel method and algorithm globally may improve the last period of life in millions of older people and incidentally saving money-drug cost and the cost of hospitalizations resulting from IMUP side effects a triple Clinical-Economical Win-Win situation.

### Case Report 1, Part 1

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#### Home visit

October 2008. I was invited to perform a psychogeriatric assessment by the only daughter of Mrs. EtiCalishu and to recommend a guardian.

**Medical history:** An 87 year old woman. Hypothyroidism- Controlled. Mastectomy-18 years ago. No follow up by an Oncologist for more than a decade, Hyperlipidemia, Type 2 Diabetes Mellitus diagnosed 2 years ago based on slightly increased serum glucose concentration. No Heart, Lung, Renal or Gastrointestinal problems. 10 years ago, cognitive decline was noted, in the last 3 years she was diagnosed as suffering from severe Dementia, Alzheimer's disease with double incontinence and functional Deterioration, diagnosed by her family doctor as Frail-Disabled. A gradual weight loss was noticed for the last 2 years. Now, body weight 35 Kg. Lately Dysphagia, gastric regurgitation with lung involvement, some doctors suggested Nasogastric tube or PEG. However, while still alert, Mrs. Calissu asked NOT to extend her life-DNR, do not feed.

Comprehensive Geriatric Assessment was performed. Main findings on Physical Examination: Severe Cachexia, extensive hematomas & bruises all over her body, severe dementia, severe instability, almost fell down during the meeting.

#### Medications

T. Eltroxin 75 mcg, T. Tamoxifen 10 mg × 1, T. Aspirin 100 mg × 1

T. Simvastatin 10 mg × 1, T. Metformin 850 mg × 1, T. Fluoxetine 20 mg × 1, Calcium + Vitamin D, Iron Preparations

#### Questions

What is the life expectancy?

What medications should be discontinued and why?

Part 2 with follow up, details of deprescribing and the clinical outcomes are presented on page ... References on page...

## Case Report 1, Part 2

### Deprescribing and follow up

#### Medications:

T. Eltroxin 75 µg, T. Tamoxifen 10 mg × 1, T. Aspirin 100 mg × 1,

T. Simvastatin 10 mg × 1, T. Metformin 850 mg × 1, T. Fluoxetine 20 mg × 1, Calcium + Vitamin D, Iron preparations.

October 2008-deprescribing started

I recommended discontinuation of ALL medications except for Eltroxin and Vitamin D.

FLUOXETIN was stopped gradually. There is no indication for an anti depressant drug in patients suffering from severe, end stage dementia.

TAMOXIFEN is not indicated for more than 5 to 6 years when given to women with breast cancer. With no oncologic follow up, who was responsible to stop?

ASPIRIN is no longer indicated as primary prevention in old people [9,10]. Facing the high risk for falls and bleeding Aspirin benefit/risk ratio is certainly negative in Mrs. Calishu.

The preventive benefits of STATINS were not proven in very old people [11-13], the main side effect is muscle weakness with increased risk for falls and increase in serum glucose [14,15]. In conclusion, in Mrs. Calishu there was a negative benefit/risk ratio to STATINS.

Slightly increased glucose concentration should not be automatically treated with anti diabetic drugs. Furthermore, unlike younger adults, in older people particularly with limited life expectancy the goal is not "Perfect Glycemic Control". But mainly to prevent hypoglycemia and the upper limit of HgA1C may be increased to 8% [16].

IRON- The anemia of Mrs., Calishu was normochromic normocytic with normal serum Ferritin concentration, not iron deficiency anemia but anemia of chronic disease where iron preparations have no beneficial effects and on the other hand may cause gastrointestinal side effects. I recommended to stop iron preparations while monitoring serum hemoglobin.

### Follow Up

October 2008-Poly deprescribing suggested and started.

November 2008: Phone call from the daughter: "Prof. Garfinkel, What have you done to us? My mother now has Bulimia, Her appetite is back, she is eating like crazy, regaining her strength, regain color in her face, looks happy! Certainly, no tube feeding is needed, and something strange, remember you have stopped the drug for Diabetes? Though she doesn't stop eating-blood sugar is normal!"

November 2009: Eventually gained 15 Kg in weight (Now 50 Kg) still eating good, happy, more independent, no bruises at all.

November 2010: The daughter called to inform: My mother died peacefully in bed with no suffers. Thanks for helping her enjoy her last years with better quality of life and no tube feeding..."

**Conclusion:** In Mrs. EtiCalishu poly deprescribing solved the clinical problems as well as the ethical issue.

I believe this is Palliative care at its best Minus 7 drugs in the last 2 years of life... A Win-Win Clinical-Economical situation... Globally, the lives of how many millions of older people suffering from dementia can be improved in the last years (or decades) of life by rational deprescribing, and how much money can be saved for society?

## Case Report 2, Part 1

### Home visit

6/12/2011: Mrs. Alone, age 85, Hypothyroidism, Diabetes Mellitus, Hyperlipidemia?

Hypertension, Blood pressure Ave: 140/80, Max 155/84, Min 115/65. No Vascular target organ damage to coronary, kidney, retina or peripheral vessels. several months less active, her son reports that she stays more at home, stopped hobbies, reduced hygiene, looked neglected, eats less, "feels miserable" ...

In August 2011 a Psychiatrist diagnosed dementia, Mini Mental State Examination (MMSE) =18/30 Brain CT revealed bilateral lacunar periventricular infarcts. The Psychiatrist prescribed "anti-memory loss" medications. Physical examination was unremarkable except for diffuse muscle weakness, deafness and depressive attitude. Depression was confirmed by the Geriatric Depression Scale (GDS). As for the cognitive status, the Mini mental state examination (MMSE) was 17/30.

#### Medications

T. Eltroxin 100 µg × 1, T. Aspirin 75 mg × 1, T. Clopidogrel 75 mg × 1,

T. Disothiazide 25 mg × 1, T. Amlodipine 5 mg × 1, T. Ramipril 2.5 mg × 1,

T. Doxazocine 2 mg × 1, Atorvastatin 10 mg × 1, T. Metformin 850 mg × 1,

T. Galantamine 16 mg × 1, T. Memantin 20 mg × 1, Calcium + Vitamin D.

#### Questions

What is the life expectancy?

If she lives, what would be the Functional, Mental and Cognitive status in 1, 2, 3 years?

What would be the placement-Home? Long Term Capacity (LTC)?

What medications should be deprescribed and why?

Part 2 with follow up, details of deprescribing and the clinical outcomes are presented on page...

## Case Report 2, Part 2

### Deprescribing and follow up

#### 6/12/2011: Medications:

T. Eltroxin 100 µg × 1, T. Aspirin 75 mg × 1, T. Clopidogrel 75 mg × 1,

T. Disothiazide 25 mg × 1, T. Amlodipine 5 mg × 1, T. Ramipril 2.5 mg × 1,

T. Doxazocine 2 mg × 1, Atorvastatin 10 mg × 1, T. metformin 850 mg × 1,

T. Galantamine 16 mg × 1, T. Memantin 20 mg × 1, Calcium + Vitamin D.

I recommended deprescribing ALL medications except for Eltroxin and Vitamin D. and also Clopidogrel because she informed me that her Cardiologist insisted on continuing this medication "until death", and she was afraid to stop it.

Atorvastatin was discontinued initially for 3 months because the preventive benefits of STATINS have not been proven in very old people [11-13], the main side effect is muscle weakness with increased risk for falls. And increase in serum glucose [14,15]. In conclusion, in Mrs. Alone STATINS had a negative benefit/risk ratio. After 3 months, feeling better she decided by herself not to restart Atorvastatin.

Metformin was deprescribed because the serum glucose concentrations were only slightly elevated making the possibility of hypoglycemia a real threat [16].

Anti hypertensive drugs were deprescribed gradually one by one every week while monitoring blood pressure confirming the average is not higher than 150/90 [17-21]. DOXAZOCINE was stopped first because as an alpha blocker it may cause orthostatic hypotension and increase the risk of falls in older people. Later on, Amlodipine, Disothiazide and Ramipril have been deprescribed with monitoring.

Galantamine and Memantin were deprescribed because the cognitive decline seemed to be related to depression. Following this approach, the anti-depressive Mirtazapine was prescribed along with a strong recommendation to combine psychotherapy.

## Follow Up

December 6, 2011: Age 85, Poly deprescribing suggested and started.

February 2012: Following my instructions, she stopped all medications recommended, Anti-Hypertensive medications gradually. Now on Mirtazapine, started psychotherapy.

Several weeks later, she and her son reported a significant improvement, less weakness in legs, improved function. Blood Pressure: Systolic average 110 to 120, Maximum 135 mmHg. Diastolic 60 to 70 without any Anti-Hypertensive medications. A significant improvement in mood goes out of home more often, went back to enjoy previous hobbies... As for her cognitive status, the son reported on no apparent change with no "memory improving" Medications

March 2013: (by phone): No change, feels good, concerned about serum cholesterol levels that seemed to be increasing, but as she felt much better, she declared: "I do not care dying with abnormal serum lipids if I experience less weakness" and she therefore decided not to restart STATINS adopting the saying: "we should treat the patient, not the numbers"...

August 2014: Almost 3 years later, the son needs a formal psychogeriatric assessment and documents. Mrs. Alone feels good, no walking aid, no symptom or sign of depression cognitive status: The Mini Mental State Examination (MMSE) =24/30 (it was 17/30 on 6/12/2011). Serum Glucose 128 mg/dL, Triglycerides =172, HDL=64, LDL=164 mg/dL.

April 2015: Age 89-No significant Change. Alert and quite active, following my visit she politely accompanied me to my car...

April 2016: Some functional & cognitive decline is reported, less active, she mainly listens to music. Functional status - Frail

August 2018: Age 92 Frail, significant cognitive decline, Un-measurable MMSE (< 5/30)

I recommended 24 h/day care giver as well as appointing a guardian.

September 2019 - Mrs. Alone died peacefully at home.

Mrs. Alone represents millions of older people whose functional status is declining with or without dementia. Rational deprescribing can improve their functional and cognitive status and quality of life in the last years of life. The clinical improvement caused by polydeprescribing may be evident quite quickly, usually within 3 months and persists for years [1]. This fact may encourage family doctors to overcome the barriers and routinely deprescribe [22].

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