

BZRA deprescribing on acute geriatric units

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Disclosure

No conflict of interest to declare

Purpose

BZRA = benzodiazepine receptor agonist

ATC N05BA, N05CD, N05CF, N03AE01



Efficacy :

- Modeste and short term effect
- Quick decrease of effects

Risks :

- Excessive sedation
- Falls and fractures
- Memory loss
- Dependency et addiction

BenzodiaZepine Receptor Agonists

*Sithamparanathan Asian J Gerontol Geriatr 2012; Glass BMJ 2005; Tseng Neurotherapeutics 2020;
Donnelly PloS One 2017; Zhong PloS One 2015*

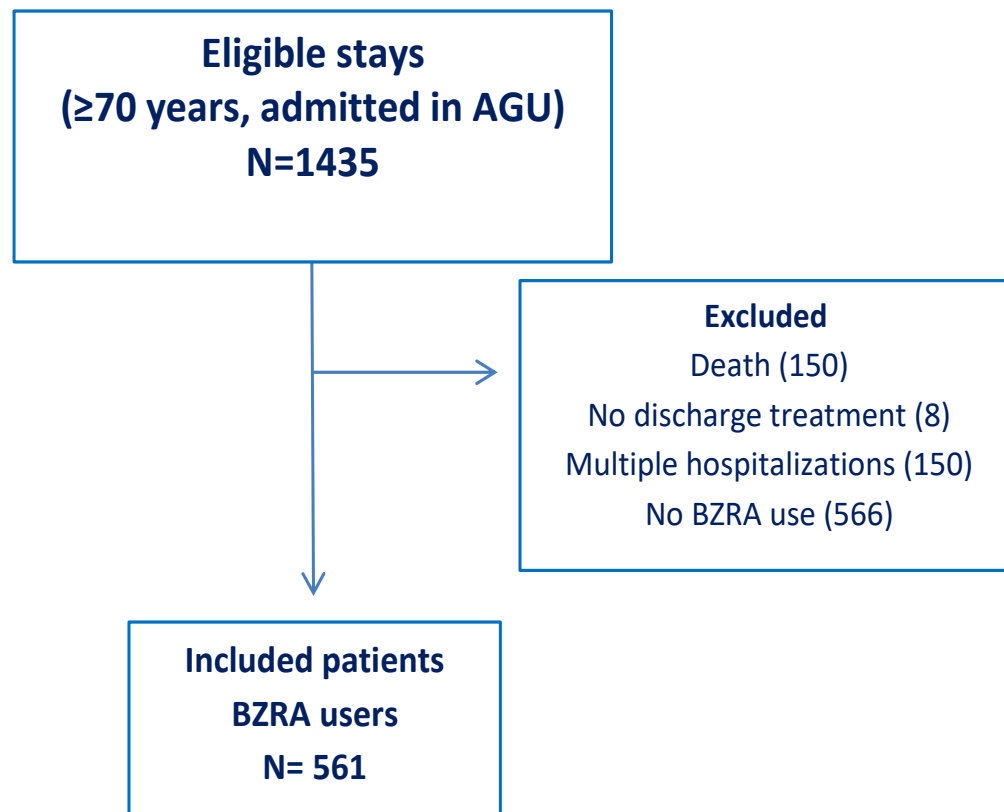
Purpose

Deprescribing= process of **withdrawal** of an **inappropriate medication** under the supervision of a healthcare professional with the goal of managing polypharmacy and improving outcomes

Reeve et al, Eur J Clin Pharmacol 2017

Methods

- Multicenter retrospective study over 1 year



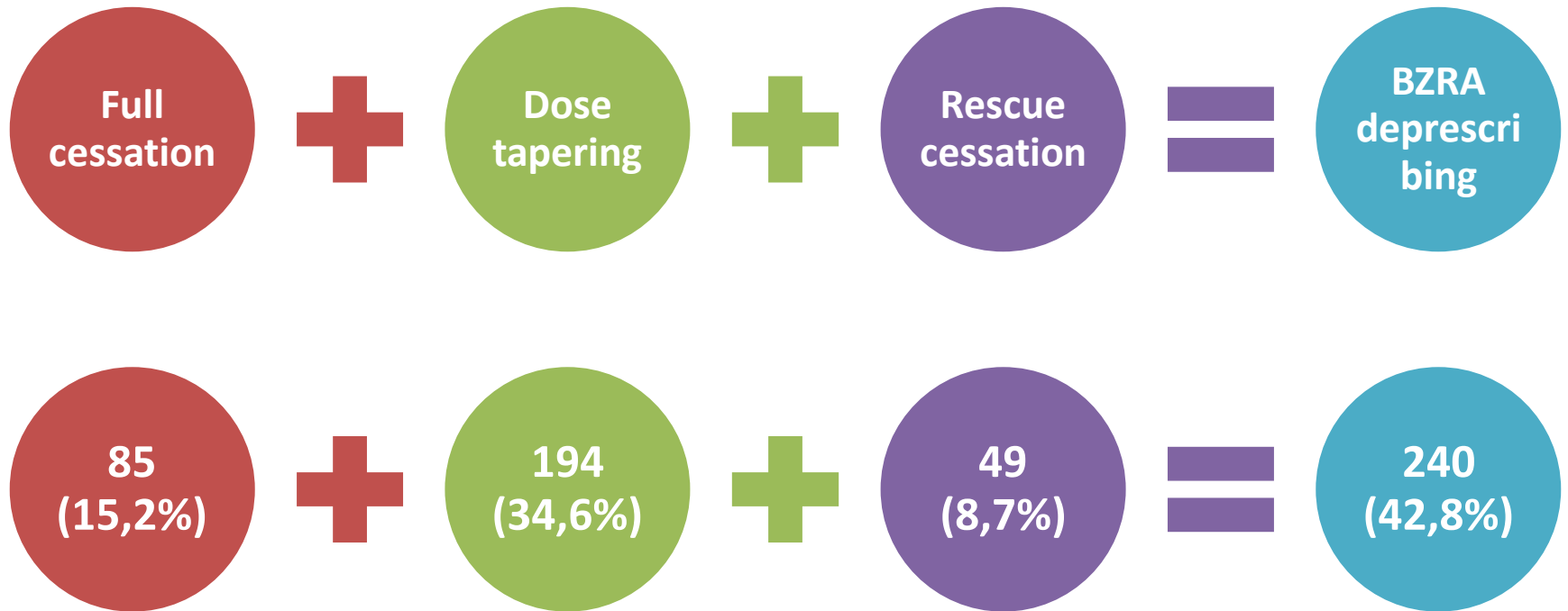
Outcomes

- BZRA deprescribing at discharge + associated factors
- Switch to another sedative molecule at discharge

Population characteristics



Results



Results

- Associated factors:
 - BZRA related **adverse event** : OR 4,5
 - BZRA **dosage** : OR 1,2
 - **Antipsychotic** use: OR 0,5

Results

	BZRA deprescription	BZRA continuation	P-value
New trazodone	14 (6,0%)	6 (1,8%)	0,006
New mirtazapine	15 (3,7%)	12 (6,4%)	0,162

Discussion

- BZRA prevalence in Belgian acute geriatric units ~48%
- BZRA deprescribing without specific intervention ~43%

Discussion

- Factors associated:
 - Adverse event
 - BZRA dosage
 - Antipsychotic use
- Low rate of switch to another sedative molecule

Conclusion

- BZRA deprescribing substantial at discharge
- Mainly reactive deprescribing
- Best intervention remain unclear :
 - increase proactive deprescribing
 - Collaboration with GP's, family and nursing homes
 - Mid-term persistence of BZRA deprescribing

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BACKUP SLIDES

	BZRA users N=561	BZRA deprescription N= 240	BZRA continuation N= 321	P value ^a
Demographic data				
Age (years), mean, SD	85.3; 5.9	84.8; 5.9	85.7; 5.8	0.066
Female Gender, n (%)	392 (69.9)	168 (70.0)	224 (69.8)	0.999
Place of living, n (%)				
- Home	412 (73.4)	165 (68.7)	247 (76.9)	0.015
- Nursing home	149 (25.5)	75 (31.2)	74 (23.1)	
Comorbidities				
CIRS-G , median ; Q1-Q3	22 ; 18-25	22 ; 19-26	21 ; 17-25	<0.001
Anxiety, n (%)	92 (16.4)	44 (18.3)	48 (15.0)	0.340
Sleep disorder, n (%)	49 (8.7)	22 (9.1)	27 (8.4)	0.871
Restless leg, n (%)	16 (2.9)	7 (2.9)	9 (2.8)	0.999
Depression, n (%)	149 (26.6)	71 (29.6)	78 (24.3)	0.192
Psychiatric disorder, n (%)	16 (2.9)	7 (2.9)	9 (2.8)	0.999
Extrapyramidal syndrome, n (%)	58 (10.3)	21 (8.7)	37 (11.5)	0.353
Previous fracture, n (%)	201 (35.8)	93 (16.6)	108 (26.2)	0.247
Fall at admission, n (%)	274 (48.8)	115 (47.9)	159 (49.5)	0.769
Current fracture, n (%)	85 (15.2)	31 (12.9)	54 (16.8)	0.247
COPD, n (%)	82 (14.6)	36 (15.0)	46 (14.3)	0.919
Delirium at admission, n (%)	188 (33.5)	95 (57.9)	93 (44.9)	0.017
Cognitive decline, n (%)	316 (56.3)	148 (61.7)	168 (52.3)	0.034
BPSD, n (%)	95 (16.9)	45 (47.4)	50 (52.6)	0.380
Administrative data				
Admission, n (%)				
- Emergency	110 (19.6)	52 (21.7)	58 (18.1)	0.099
- Transfer	65 (11.6)	34 (14.2)	31 (9.7)	
- Direct in AGU	386 (68.8)	154 (64.2)	232 (72.3)	
Length of stay(days),median ; Q1-Q3	15 ; 11-22	16 ; 12-23	15 ; 11-22	0.181
Discharge destination, n (%)				
- Home	277 (49.4)	107 (44.5)	170 (52.9)	0.040
- Nursing home	200 (35.7)	102 (42.5)	98 (30.5)	
- Short stay of transfer	74 (14.9)	31 (12.9)	53 (16.5)	

Medication				
Total medications, median ; Q1-Q3	9 ; 7-12	9 ; 7-12	9 ; 7-11	0.174
Polypharmacy, n (%)	514 (91.6)	218 (90.8)	296 (92.2)	0.668
Excessive polypharmacy, n (%)	250 (44.6)	116 (48.3)	134 (41.7)	0.142
Lorazepam equivalent dose, median ; Q1-Q3	1.0 ; 1.0- 2.0	1.33 ; 0.9-2.5	1.0 ; 1.0-2.0	0.023
Multi BZRA users, n (%)	112 (20.0)	73 (30.4)	39 (12.1)	<0.001
BZRA switch, n (%)	65 (11.6)	26 (10.8)	39 (12.1)	0.727
Other psychotropic drugs, median ; Q1-Q3	1; 1-2	1; 1-2	1 ; 0-2	0.034
Other psychotropic drug users, n (%)	399 (71.1)	184 (76.7)	215 (67.0)	0.016
Multi psychotropic drug users, n (%)	231 (41.2)	119 (50.9)	112 (32.3)	<0.001
Antipsychotic users, n (%)	116 (20.7)	43 (13.0)	73 (31.6)	0.270
Antidepressant users, n (%)	273 (48.7)	135 (56.3)	138 (43.0)	0.008
- Trazodone	59 (10.5)	32 (9.0)	27 (7.3)	0.054
- Mirtazapine	45 (8.0)	21 (13.7)	24 (8.3)	0.586
Miscellaneous				
Palliative status, n (%)	42 (7.5)	20 (8.3)	22 (6.8)	0.619
Intervention of a clinical pharmacist, n (%)	202 (36.1)	103 (42.9)	99 (30.9)	0.004
BZRA related adverse event, n (%)	88 (15.7)	65 (27.1)	23 (7.1)	<0.001
BZRA switch, n (%)	65 (11.6)	26 (11.1)	39 (11.9)	0.870

	AGU 1 (n= 172)	AGU 2 (n= 215)	AGU 3 (n= 174)
Demographic data			
Age (years): mean; SD	86.7; 5.6	84.4; 5.7	85.1; 6.2
Female gender	123 (71.5%)	143 (66.5%)	126 (72.4%)
Comorbidities			
CIRS-G: median; Q1-Q3	20; 17-23	24; 20-28	20.5; 17-24.75
Anxiety	10 (5.8%)	59 (27.4%)	23 (13.2%)
Sleep disorder	5 (2.9%)	26 (12.1%)	18 (10.3%)
Restless leg syndrome	1 (0.6%)	11 (5.1%)	4 (2.3%)
Depression	33 (19.2%)	63 (29.3%)	53 (30.5%)
Extrapyramidal syndrome	13 (7.6%)	25 (11.6%)	20 (11.5%)
COPD	23 (13.4%)	34 (15.8%)	25 (14.4%)
Cognitive decline	129 (75.0%)	83 (38.6%)	104 (59.8%)
BPSD	36 (20.9%)	26 (12.1%)	33 (19.0%)
Delirium at admission	55 (32.0%)	76 (35.3%)	57 (32.8%)
Fall at admission	77 (44.8%)	112 (52.1%)	85 (48.9%)
Current fracture	22 (12.8%)	30 (14.0%)	33 (19.0%)
Previous fracture	60 (34.9%)	83 (38.6%)	58 (33.3%)
Psychiatric disorder	3 (1.7%)	5 (2.3%)	8 (4.6%)
Administrative data			
Place of living:			
- Home	122 (70.9%)	169 (78.6%)	121 (69.5%)
- Nursing home	50 (29.1%)	46 (21.4%)	53 (30.5%)
Length of stay (days): median; Q1-Q3	15; 11.75-20	15; 11-21.5	16; 11-26
Admission route:			
- Emergency	146 (84.9%)	116 (54.0%)	124 (71.3%)
- Direct	15 (8.7%)	70 (32.6%)	25 (14.4%)
- Transfer	11 (6.4%)	29 (13.5%)	25 (14.4%)
Discharge destination:			
- Home	88 (51.2%)	108 (50.2%)	81 (46.6%)
- nursing home	61 (35.5%)	68 (31.6%)	71 (40.8%)
- short stay or transfer	23 (13.4%)	39 (18.1%)	22 (12.6%)

Medications			
Total medications: median; Q1-Q3	8.5 ; 6-10.25	10 ; 8-13	8 ; 6-11
Polypharmacy	149 (86.6%)	206 (95.8%)	159 (91.4%)
Excessive polypharmacy	63 (36.6%)	122 (56.7%)	65 (37.4%)
Lorazepam equivalent dose: median; Q1-Q3	1.3; 1-2.5	1; 0.95-2	1; 0.85-2
Multi BZRA users	29 (16.9%)	51 (23.7%)	32 (1.8%)
Psychotropic drug users	119 (69.2%)	157 (73.0%)	123 (70.7%)
Multi psychotropic drug users	69 (40.1%)	97 (45.1%)	65 (37.4%)
Antipsychotic users	39 (22.7%)	43 (20.0%)	34 (19.5%)
Antidepressant users	76 (44.2%)	118 (54.9%)	79 (45.4%)
Trazodone users	13 (7.6%)	30 (14.0%)	16 (9.2%)
Miscellaneous			
Palliative status	10 (5.8%)	8 (3.7%)	24 (13.8%)
Intervention of a clinical pharmacist	0 (0.0%)	202 (94.0%)	0 (0.0%)
BZRA related event	11 (6.4%)	51 (23.7%)	26 (14.9%)

Results : BZRA deprescription

	Univariate analysis		Multivariate analysis	
	OR [95CI]	p value	OR [95CI]	p value
Demographic data				
Age	1 [0.9;1]	0.08	1 [0.9 ; 1]	0.369
Comorbidities				
CIRS_G	1.1 [1;1.1]	0.001	1 [1 ; 1.1]	0.210
Depression	1.3 [0.9;2]	0.161	1.3 [0.8;2.1]	0.218
Delirium at admission	1.7 [1.2;2.4]	0.009	1.2 [0.8;1.7]	0.498
Cognitive decline	1.5 [1.1;2.1]	0.028	1.5 [1;2.3]	0.061
Administrative data				
Admission directly in AGU	1			
Admission through emergency room	1.3 [0.9;2]	0.214	1.1 [0.7 ; 1.9]	0.714
Admission from another ward	1.7 [1;2.9]	0.033	1.4 [0.8 ; 2.6]	0.300
Length of stay	1 [1;1]	0.126	1 [1;1]	0.207
Living in a nursing home	1.5 [1;2.2]	0.030	1.2 [0.6;2.2]	0.542
Discharge to home	1			
Discharge to a nursing home	1.6 [1.1;2.3]	0.007	1.5 [0.8;2.7]	0.173
Discharge to another ward	0.9 [0.5;1.4]	0.776	0.8 [0.4;1.4]	0.407
Medications				
Lorazepam equivalent dosage	1.3 [1.1;1.5]	0.003	1.2 [1;1.4]	0.028
Antipsychotic user	0.8 [0.5;1.2]	0.164	0.5 [0.3;0.8]	0.008
Trazodone user	1.8 [1;3]	0.033	1.3 [0.7;2.4]	0.464
Antidepressant user	1.8 [1.3;2.5]	0.002	1.5 [1;2.2]	0.075
Miscellaneous				
Intervention of a clinical pharmacist	1.8 [1.2;2.5]	0.003	1.5 [0.9;2.3]	0.105
BZRA related adverse event	5.1 [3.1;8.6]	<0.001	4.5 [2.6;7.9]	<0.001

Results (3): BZRA cessation

	Univariate analysis		Multivariate analysis	
	OR [95CI]	p-value	OR [95CI]	p-value
Demographic data				
Age	1 [0.9;1]	0.276	1 [0.9;1]	0,120
Comorbidities				
CIRS-G	1 [1;1.1]	0.150	1 [1;1.1]	0,545
Depression	1.3 [0.9;1.8]	0.878	1.1 [0.5;1.8]	0,777
Delirium at admission	1.6 [1;2.5]	0.062	1.4 [0.8;2.3]	0,214
Cognitive decline	1.3 [0.8;2]	0.329	0.9 [0.5;1.7]	0,850
Administrative data				
Admission directly in AGU	1			
Admission through emergency room	1.3 [0.9;2]	0.204	0.7 [0.3;1.3]	0,278
Admission from another ward	1.7 [0.6;2.9]	0.591	0.9 [0.4;1.8]	0,753
Length of stay	1 [1;1]	0.134	1 [1;1]	0,075
Living in a nursing home	1.5 [1;2.2]	0.049	1.4 [0.6;3.1]	0,432
Discharge to home	1			
Discharge to a nursing home	1.6 [1.1;2.3]	0.069	1.4 [0.6;2.9]	0,432
Discharge to another ward	0.9 [0.5;1.4]	0.195	0.4 [0.2;1.1]	0,083
Medications at baseline				
Lorazepam equivalent dosage	0.5 [0.4;0.7]	<0.001	0.5 [0.3;0.6]	<0,001
Antipsychotic user	0.9 [0.5;1.5]	0.647	0.5 [0.3;1.2]	0,087
Trazodone user at admission	1.8 [1;3]	0.055	0.7 [0.2;1.9]	0,495
Antidepressant user	1.4 [0.9;2.3]	0.119	1.2 [0.7;2.1]	0,661
Miscellaneous				
Intervention of a clinical pharmacist	1.8 [1.2;2.5]	0.881	0.8 [0.4;1.5]	0,473
BZRA related adverse event	5.1 [3.1;8.6]	0.069	2.2 [1.2;4.3]	0,022

Results

- New **trazodone**: 9,4% in patients with BZRA deprescription >< 2,5% in patients without BZRA deprescription (p=0,006)
- New **mirtazapine**: 5,9% in patients with BZRA deprescription >< 4,6% in patients without BZRA deprescription (p=0,584)

1 Scott S Int J Clin Pharm 2018