CASE STUDY – JB

Patient JB is a 77yr old Caucasian male in permanent long-term care residence at Resthaven.

JB was admitted to facility at daughter's request 2 years ago. He was a resident at another local LTC facility in town from 2013-2017. Documentation before point this is sparse - patient had a history of mental illness and substance abuse and was no longer able to live independently due to advancing Alzheimer's and Parkinson's. He was diagnosed with schizophrenia and bipolar disorder at age 38 and was treated on an outpatient basis in the community, as well as intermittently inpatient. He used street drugs for a time and lived in a halfway house, according to transferred records.

Case worker notes showed he was employed as a math teacher and was pleasant/friendly in temperament; his marriage failed but his adult daughter and her family were and continue to be involved in his life and care. There were hints in the records that he may have lost his job due to mental illness/drug use. Upon admission to Resthaven JB had a PEG tube in place and the records attribute this to dysphagia from aspiration pneumonia with no additional details. When, where, and how it was treated is unknown. JB was not fully mobile at the time of admission to this facility – coordinated ambulation was an issue, and JB was in a wheelchair for safety.

Upon admission JB was not able to communicate well and needed assistance with food and liquid intake outside of enteral due to tremors and dementia. He had compromised dentition, dysphagia, and was receiving almost all nutrition enterally through the PEG. Patient could not recall diet history or usual intake at the time but displayed some food preferences when offered the opportunity to choose.

The transfer records listed the following conditions, none of which had diagnosis dates:

Alzheimer's disease
Dementia
Heart failure
Major depressive disorder
Unspecified atrial fibrillation
COPD and asthma, allergic rhinitis
Bipolar disorder
Parkinson's disease
Abdominal aortic aneurysm

The list of medications the patient was long as well. See end of paper for discussion/notes.

Aricept 10mg
Wellbutrin XL 150mg
Seroquel 350mg
Depakote 250mg
Depakote ER 500mg
Namenda 10mg
Mirtazapine 15mg
Remeron 7.5mg
Senna (unknown dose)
Miralax (unknown dose)

No standardized chart notes were available from the transfer – resident RD Mary Cole took non-traditional chart notes upon admission and used a proprietary facility documentation process for progress notes. Cole's goal was maintenance of pre-existing conditions and reversal of dysphagia, removal of PEG and elimination of enteral feeding. Patient was seen by SLP and Behavioral Care for initial assessment and care plan for dysphagia and chronic mental illness.

Anthropomorphic measurements at **time of admission**:

Weight: 171lbs, calculated by mechanical lift
BMI: 27.6
Height: 66", calculated by wing span
UBW unknown – transfer records incomplete

IBW: *106 for first 5', add 6lbs for every additional inch*
106 + (6lbs * 6 inches) = 142lbs
%IBW: 120%

Goals at the **time of admission** (from Cole's notes):

No significant weight changes. Intake to meet estimated needs. No difficulty with diet texture. No s/s aspiration. No s/s dehydration. If oral intake improves may be able to decrease tube feed. Will determine this based on weight and food acceptance.

Intervention at the **time of admission** (Cole's notes):

75% of needs provided enterally. Takes NDD3 diet and nectar thick liquids for pleasure and to meet nutritional needs. Oral intake is limited but currently is enough to meet estimated needs. Resident states he is not hungry, which can be anticipated during enteral support. Does like chocolate pudding but shakes head "no" when asked about chocolate supplements. Has aspiration with thin liquids. Meeting fluid needs from free water flushes, tube feed and flushes between meds. Nectar thick fluids for pleasure. Working with SLP to determine if current diet texture is least restrictive medically necessary.

Jevity 1.5 at 60mls/hr via PEG over 16hrs (off during the day). 110 mls free water flushes every 2 hrs while tube feed running. Multivitamin and mineral daily. NDD3 diet as desired and tolerated for pleasure. Assistance needs assessed meal by meal. Nectar thick liquids orally as desired and tolerated. Monitor and record food acceptance at all meals. Work with family to determine food preferences.

DIET HISTORY

Not available, and patient can only sporadically recall. The only foods patient will currently consume is mashed strawberries, chocolate pudding, cranberry juice, mashed potatoes, and fried eggs. Limited food acceptance makes supplementation necessary (taken in pudding) and nectar liquids. Patient is offered menu choices and refuses most house diet items. We don't know if patient's extreme food selectivity is part of mental illness or discomfort in swallowing – patient has not articulated this.

ESTIMATION OF NEEDS

JB isn't critically ill, but he is not what I would consider healthy. He is completely sedentary and while his last weight shows an "overweight" BMI, he is frail in appearance. Physical anthropomorphic measurements were unavailable – Cole did not appear to take skin-fold or temporalis/interosseous measurements on admission but based on brief observation of JB I suspect some overall loss of lean body mass – either from the degenerative conditions or limited caloric intake (or both). I'm comparing MSJ and ASPEN values to determine a range of kcal and macro intake that will maintain his weight. I wouldn't be afraid to err higher on the protein range. Indirect calorimetry would be ideal but was not available.

Estimated REE (Mifflin St-Jeor)

10(wt) + 6.25(ht) – 5(age) + 5
10 (75.6kg) + 6.25 (167.6cm) – 5(77) + 5 = 2193kcal

As a comparison, ASPEN 25-30kcal/kg/day = 1890-2268kcal*

Carbohydrate 45-60% = 987-1316 /6kcal per gram = 165-219g/day

Protein 10-35% = 219-768 /4kcal per gram = 55-192g/day
(or 1-1.2g/kg/day) = 75.6-91g

Fat 20-35% = 439-768 /9kcal per gram = 48-85g/day

Fluids = 1mL per kcal = 2193mL or approximately 75 oz

Patient will continue supplementation of house multivitamin mixed into pudding.

ASSESSMENT OF NUTRITIONAL STATUS

Patient is currently stable. After recovering from aspiration pneumonia incident last year, patient is tolerating the mechanically modified diet well. PEG tube was removed, and patient is 100% oral intake as of April 2019. Temporary addition of Remeron boosted appetite and patient regained some weight he had lost. Nutrition status is currently good – status could change if patient has another aspiration event. Patient has been willing to work with the speech therapist in the past (swallowing therapy in attempts to d/c the PEG) so he will be limited in the future only by his neuromuscular abilities and cognitive decline; currently he is cooperative and willing to try.

Medications prescribed to manage all his chronic conditions has a large impact on his quality of life. Side effects of several of these medications is dysphagia (see attached notes at end of paper) so we work to find a tolerable balance between the medication regimen and the side effects that impact his ability/desire to eat normally.

CURRENT LAB VALUES

(See table of values and discussion at end of paper)

NUTRITION CARE PLAN

Assessment:

Patient is 77-year old male admitted to long-term care facility with multiple chronic conditions and history of mental illness and drug abuse. Patient aspirated in cafeteria while eating last year and was admitted to the hospital with pneumonia; when discharged back to facility patient had lost weight and was not eating. Goal at re-admission was re-establishing nutritional status and therapy for dysphagia. Patient struggles with swallowing due to medication side effects and advancing neuromuscular disease.

Current Diet Order: continue with diet modifications currently tolerated unless patient demonstrates increased difficulty in self-feeding or reoccurring dysphagia. NDD2 and 3 modifications with select food preferences, supplementation in pudding.

Estimated Energy Requirements:

EER = 662 – (9.53 * age) + PA * (15.91 * wt kg + 539.6 * ht m) PA of 1 = sedentary
662 – (9.53*77) + 1 * (15.91 * 75.6kg + 539.6 * 1.676m) = 2035kcal

Mifflin St-Jeor is 2193kcal (see above) and ASPEN is 1890-2268kcal, so range is 2035-2268kcal

Estimated Protein Needs: 1.0-1.2g/kg body weight

75.6kg * 1.2g = 91g protein/day maximum, increase if patient shows signs of PEM

Lab values: show slightly poor cholesterol measures - triglycerides and LDL high, HDL low, low glucose and low eGFR, low ALT and protein, and high creatinine. Blood panel is nearly normal.

CW: 166lbs UBW: 168lbs %UBW: 98.8%

Ht: 66" (5'6")

BMI: 26.8 (overweight)

IBW: *106 for first 5', add 6lbs for every additional inch*
106 + (6lbs * 6 inches) = 142lbs

%IBW: 166lbs/142lbs = 117%

Diagnosis:

NC-1.1: Swallowing difficulty resulting from side effects of medications prescribed to treat medical conditions and advancing chronic neurological/muscular diseases diagnosed by patient's physician.

NB-1.5: Disordered eating pattern related to patient's limited food preferences and diagnosis of dysphagia as evidenced by patient's extreme food selectivity when provided options.

Intervention:

None at this time – patient is stable, oral intake with supplementation is sufficient to maintain estimated needs. Continue to offer variety of meal options to encourage intake.

Monitoring and Evaluation:

Patient food acceptance and intake needs to be noted at each meal – patient appetite fluctuates and after d/c Remeron we need to monitor for unintended weight loss.

Document patient's weight monthly to catch unintended weight loss early.

Patient has chronic degenerative muscular function – continue to provide adaptive eating utensils and honor food preferences until patient demonstrates inability to feed himself; at this juncture we will assess need for feeding assistance or further modification of diet if possible.

Patient must also be monitored for accidental aspiration of liquids – patient is currently on nectar but likes cranberry juice and water as well. Due to past incidence of aspiration pneumonia this will be ongoing.

REFERENCES

1) Mahan LK, Raymond JL. (2017). Krause's Food & The Nutrition Care Process. 14th ed. St. Louis, MS: Elsevier. pgs 21, 23, 125, 165, 854

2) Ericka L. Crouse, Jennifer N. Alastanos, Kevin M. Bozymski, and Robert A. Toscano (*2017*) Dysphagia with second-generation antipsychotics: A case report and review of the literature. *Mental Health Clinician*: March 2017, Vol. 7, No. 2, pp. 56-64. https://doi.org/10.9740/mhc.2017.03.056

3) Balzer, KM. (2000) Drug-Induced Dysphagia. *International Journal of MS Care*. Thomas Jefferson University Hospital Philadelphia PA. Retrieved from https://ijmsc.org/doi/pdf/10.7224/1537-2073-2.1.40 Accessed 20 April 2019.

MEDICATION DISCUSSION

	condition	side effects	interactions
Aricept 10mg	Alzheimer's, dementia	GI distress, loss of appetite, insomnia, lethargy, muscle pain	NSAIDS, naproxen, celecoxib
Wellbutrin XL 150mg	depressive disorders	nausea, constipation, insomnia, dizziness, anxiety, joint pain, sinus	alcohol, benzodiazepine sedatives
Seroquel 350mg	schizophrenia, bipolar	coordination, dizziness, throat/mouth soreness, GI distress	alcohol, other antipsychotics, blood press
Depakote 250mg/500mg	bipolar depressn, seizure	coordination, headaches, tremors, blurry vision, GI distress	NSAIDS, naproxen, lots others!!
Namenda 10mg	Alzheimer's, dementia	a long list	also a long list
Mirtazapine 15mg (aka Remeron)	depressive disorders	increased serum cholesterol, fatigue, insomnia, appetite stimulation, constipation	other antidepres, NSAIDS, cold medicine
Senna (unknown dose)	constipation	GI distress, electrolyte imbalance, weight loss, numbness in extremities	some vitamins, NSAIDS, blood thinners
Miralax (unknown dose)	constipation	GI distress, dizziness, sweating	NSAIDS, antibiotics, some vitamins

******** all drug identification, side effects and interactions referenced from Drugs.com********

Medications contributing to dysphagia: Depakote, Seroquel

Medications contributing to GI distress: Aricept, Wellbutrin, Seroquel, Depakote, Senna, Miralax

Cole did not know why JB was on multiple anti-psychotic medications in addition to treatment for both Alzheimer's and Parkinson's. JB has periods of time of insomnia, poor appetite and constipation, so we can observe the cycle of treating the side effects of one drug with another. It appears the physician wants to treat both the mental illness and degenerative neuro conditions simultaneously; unfortunately, both types of medications can conflict within JB's body and I suspect have created some collateral damage to a few of his organs. Some of these drugs can accumulate in adipose tissue over time and can become toxic.[1] We see some evidence of damage in JB's lab values (next page); with such a limited diet, why would JB have elevated cholesterol, signs of liver and kidney malfunction, cardiovascular and pulmonary issues? Perhaps prolonged clearance time, or interactions with food/illegal drugs. Pharmaceuticals aren't to blame for all of it – we know a good portion of these conditions are due to lifestyle choices, and JB is in his late 70s.

Antipsychotic medications commonly cause "extrapyramidal symptoms"[3] of which dysphagia is common. Symptoms that look like Parkinson's/dementia/Alzheimer's make me suspicious - does he have all the conditions, or is it a combination of side effects? The unanswered questions are, would JB still have dysphagia if he were not on all these medications? Is the dysphagia from the neuro physical conditions, side effects of medication, or a combination of both? If JB's medications were changed/discontinued, would it affect anything?

LAB VALUES

	29-Mar-2019	Reference Range	
Glucose	60	65-110 mg/dL	low
BUN	23	7-29 mg/dL	
Creatinine	1.42	0.60-1.40 mg/dL	high
eGFR	48	>60 mL/min/1.73m2	low
Sodium	142	136-144 mmol/L	
Potassium	5	3.6-5.1 mmol/L	
Chloride	106	101-111 mmol/L	
Carbon Diox	29	22-32 mmol/L	
Anion Gap	7	3-11 mmol/L	
Calcium	8.9	8.6-10.6 mg/dL	
Total Protein	6	6.1-7.9 g/dL	low
Albumin	3.2	3.1-4.8 g/dL	
Globulin	2.8	2.5-4.0 g/dL	
Bilirubin	0.3	0-1.30 mg/dL	

	29-Mar-2019	Reference Range	
ALP	69	38-126 iU/L	
ALT	<5	7-52 iU/L	liver damage
AST	17	11-41 iU/L	
Cholesterol	167	112-199 mg/dL	
Triglycerides	158	44-149 mg/dL	high
HDL	34	>60 mg/dL	low
LDL calc	101	0-99 mg/dL	
VLDL	32	5-40 mg/dL	
non-HDL chol	133	0-129 mg/dL	high
WBC	6.3	3.0-11.6	
RBC	4.38	4.40-6.20	
Hemoglobin	14.2	13.0-18.0 g/dL	
Hematocrit	43.1	38.5-52.0%	
MCV	98.5	80-98 fL	
MCH	32.3	26-34pg	
MCHC	32.8	32-37.0 g/dL	
RDW	14.9	11.0-14.5%	
platelets	156	130-400	

Main values to note:

Cholesterol and triglycerides	CV system
ALT	Liver
Creatinine and eGFR, protein	Kidneys

JB does not have a cholesterol-heavy diet, excess protein intake, or virtually any problematic foods. He eats the same 5 things every day for years…… what is happening here?

1) Years of drug abuse take their toll on internal organs and organ systems.
2) Patient has spent half his life on antipsychotic medications to control mental illness – all with side effects. We know nothing about his treatment history before 2013 – what was he taking?
3) Before patient had dysphagia, he may have eaten a poor diet for a long time – we know very little about his diet history other than the minimal the patient's daughter has described. Individuals struggling with mental illness and substance abuse aren't hypervigilant about eating quality food. When JB lost his job, he lost his income, and perhaps suffered food insecurity and housing issues as well.

None of these lab results surprise me. JB has had a difficult life and his body is reflecting that now. Cole does not consider JB to be in palliative care – she says he is stable, and her intent is to keep him that way as long as possible while offering quality of life by giving him exactly what he wants to eat. JB's family wishes to not place enteral if he is unable to eat, so Cole is aware of the situation should JB aspirate again. There are no corrective actions in place for these conditions – only maintenance.