

**THE EFFECT OF RADIATION
THERAPY ON BLOOD PRESSURE AND
ORTHOSTATIC HYPOTENSION IN
HEAD AND NECK CANCER PATIENTS.**

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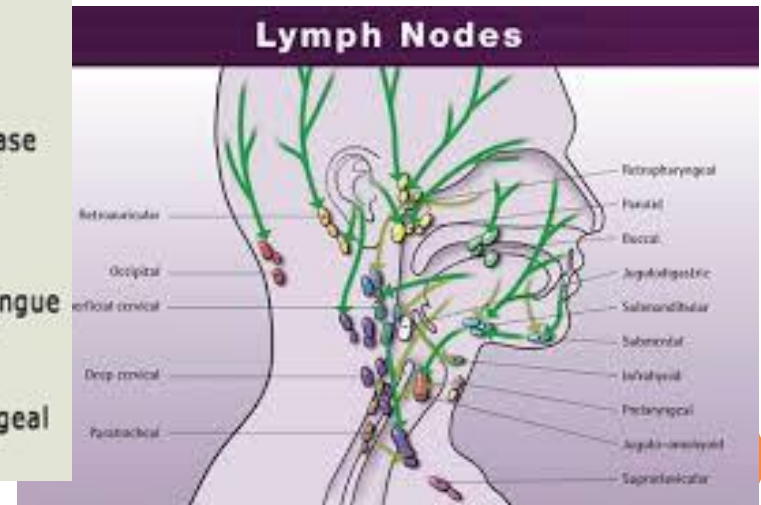
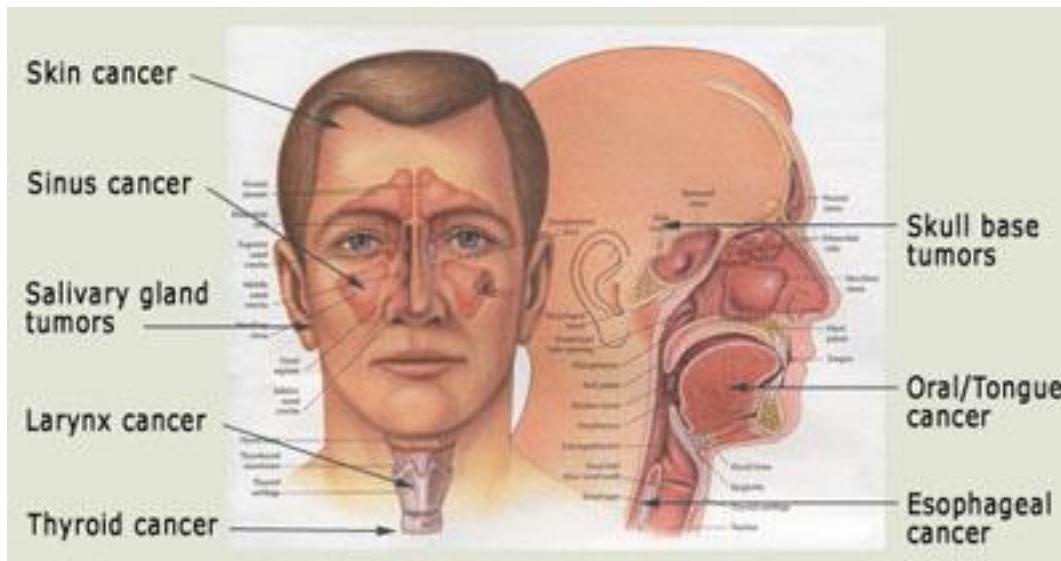
CASE REPORT

- M. M, 86 year old women from Tel aviv, complaining of hoarseness and throat pains in the last 4 months. Patient history includes 55 years of smoking (1 pack per day) and osteoporosis.
- Diagnosed with Laryngeal Carcinoma.
- Tumor was small and therefore the decision was to treat with radiation therapy only (without chemo or surgery) and was assigned 31 doses of 210 cgy.
- On second week of radiation felt blurry and fell in her house → bruised arms.
- 2 days later when getting up to use the toilet at night she fell down again.
- 3 weeks after ending treatment she fell down again and was hospitalized due to a hip fracture.



HEAD AND NECK CANCER

- MOST COMMON- SCC
- SALIVARY GLAND TUMORS, SARCOMAS, LYMPHOMAS, SKIN CANCERS
- LYMPH NODE INVOLVEMENT



TREATMENT OPTIONS

- Surgery
- Chemotherapy
- Radiation
 - Common and efficient
 - Only treatment or adjuvant
 - ~2 gray per day for a number of weeks

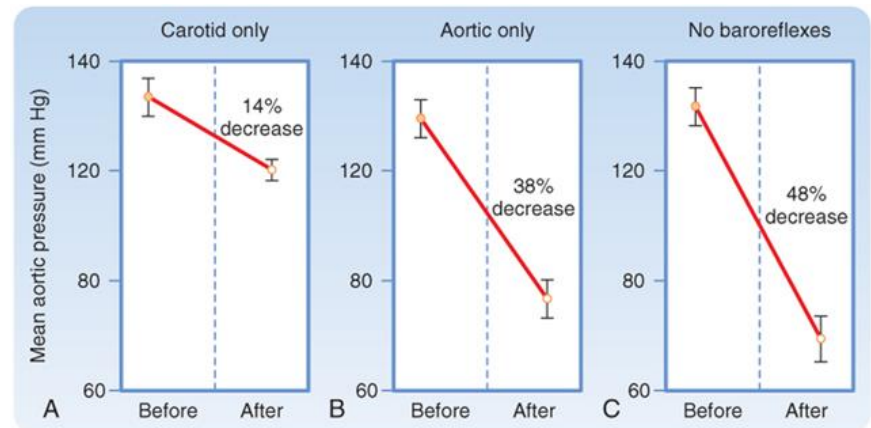
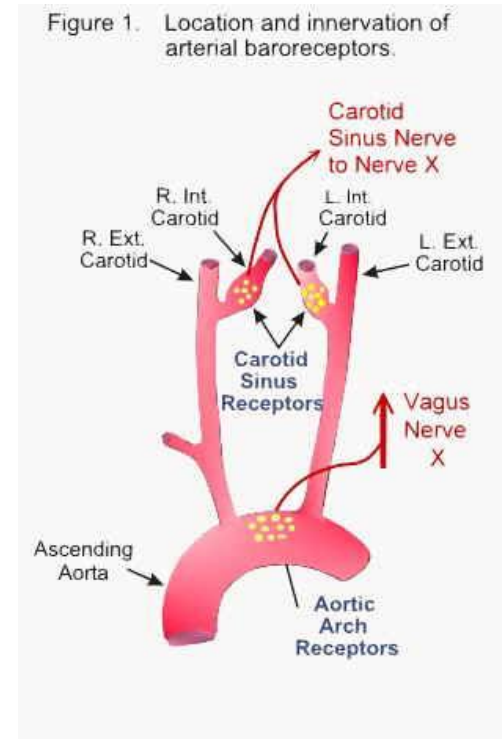
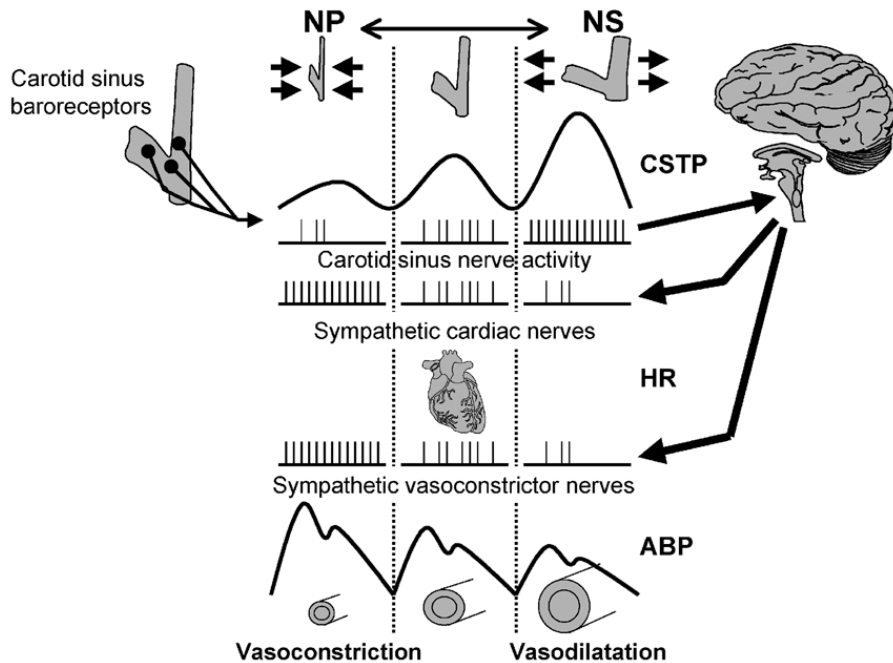


SIDE EFFECTS OF RADIATION THERAPY



BARO-RECEPTOR REFLEX

- Baro-receptors- stretch receptors
- Normal functioning Baro-reflex



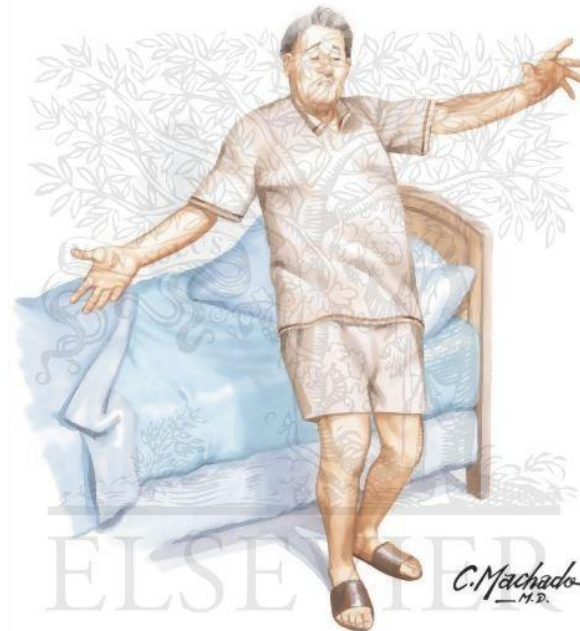
ORTHOSTATIC HYPOTENSION

- Blood pressure drop
- ↓ 20 mm Hg systolic/ ↓ 10 mm Hg Diastolic
- 300-800 ml blood pools in the legs

Table 1. Symptoms of Hypotension

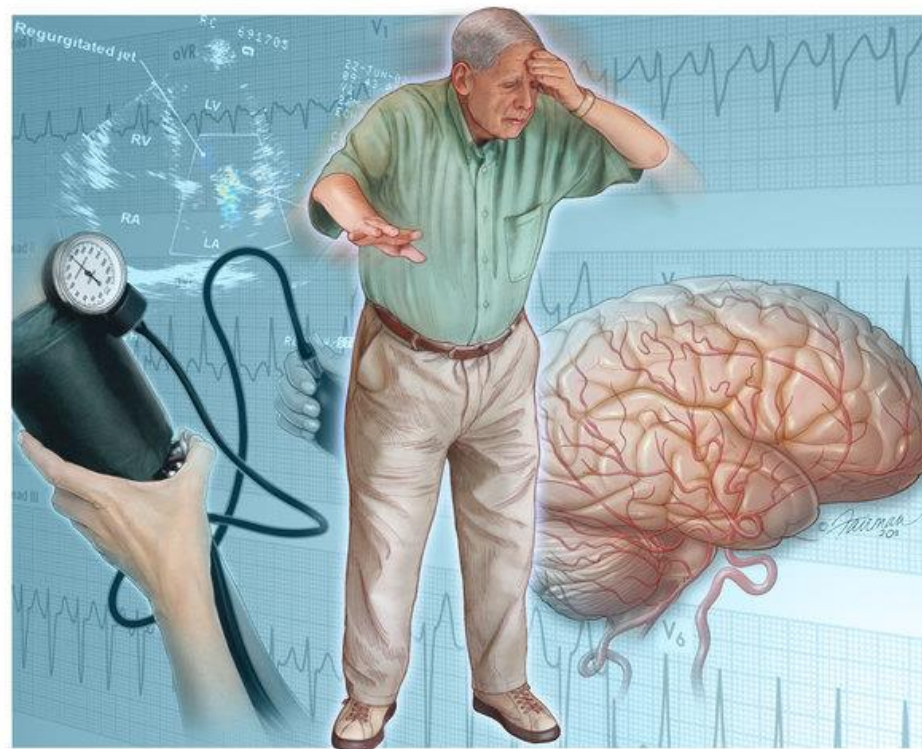
- Dizziness or lightheadedness
- Fainting
- Dehydration and unusual thirst
- Lack of concentration
- Blurred vision
- Nausea
- Cold, clammy, pale skin
- Rapid, shallow breathing
- Fatigue
- Depression

Source: Reference 4.



OUR STUDY

- The effect of radiation therapy on blood pressure and orthostatic hypotension in head and neck cancer patients.



THE EFFECT OF RADIATION THERAPY ON BLOOD PRESSURE AND ORTHOSTATIC HYPOTENSION IN HEAD AND NECK CANCER PATIENTS.

○ Protocol:

- 40 patients
- Excluding:
 - Experienced orthostatic hypotension in baseline measurements
 - Diabetic neuropathy
 - Parkinson's disease



THE EFFECT OF RADIATION THERAPY ON BLOOD PRESSURE AND ORTHOSTATIC HYPOTENSION IN HEAD AND NECK CANCER PATIENTS.

- Methods:
- 1-measuring blood pressure weekly with monitor
 - 3 times while sitting down
 - After lying down
 - 3 minutes after standing up
 - 5 minutes after standing up
- 2-Holter monitor (3 times)
- 3-Continuous Non-Invasive Arterial Pressure Monitoring- 'beat to beat' (3 times)
 - Including blood tests for catecholamines
- Lab tests for electrolytes

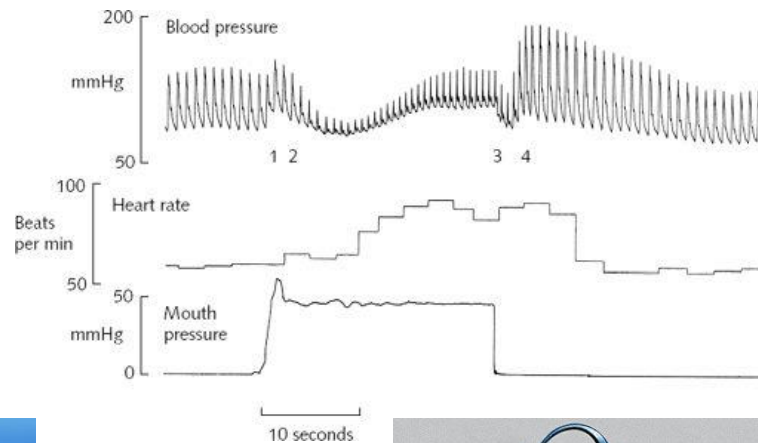


CONTINUOUS NON-INVASIVE ARTERIAL PRESSURE MONITORING- 'BEAT TO BEAT'

- Monitors blood pressure and pulse changes

During:

1. Valsalva
2. Breath test



3. Ice water
4. Tilt test
5. Catecholamine blood tests



TIME TABLE

חדש לאחר קרינה	שבוע 7	שבוע 6	שבוע 5	שבוע 4	שבוע 3	שבוע 2	שבוע 1	לפני ההקרנות (לא יותר משבועיים)	
X	X	X	X	X	X	X	X	X	שאלון קליני
X	X	X	X	X	X	X	X	X	מדידת ל"ד
X	X	X	X	X	X	X	X	X	אורתוסטטיים
X			*X					X	הולטר ל"ד
X			*X					X	beat to beat variation
X	X	X	X	X	X	X	X	X	הערכה של ת"ל לפי CTC
X			*X					X	מילוי שאלוני איכות חיים
X			*X					X	בדיקות מעבדה (דם ושתן) &
*פרוצדורות שניתן לבצע בשבוע 4 או 5 לקרינה									
& יבוצעו שוב במידה ויש ירידה משמעותית בל"ד									



CHALLENGES

- **Is the radiation the cause for the results?**
Chemotherapy? Age? **Dehydration?**
- Duration of research: 3 months each patient



RESULTS



RESULTS

- Statistically significant results- NOT YET!!

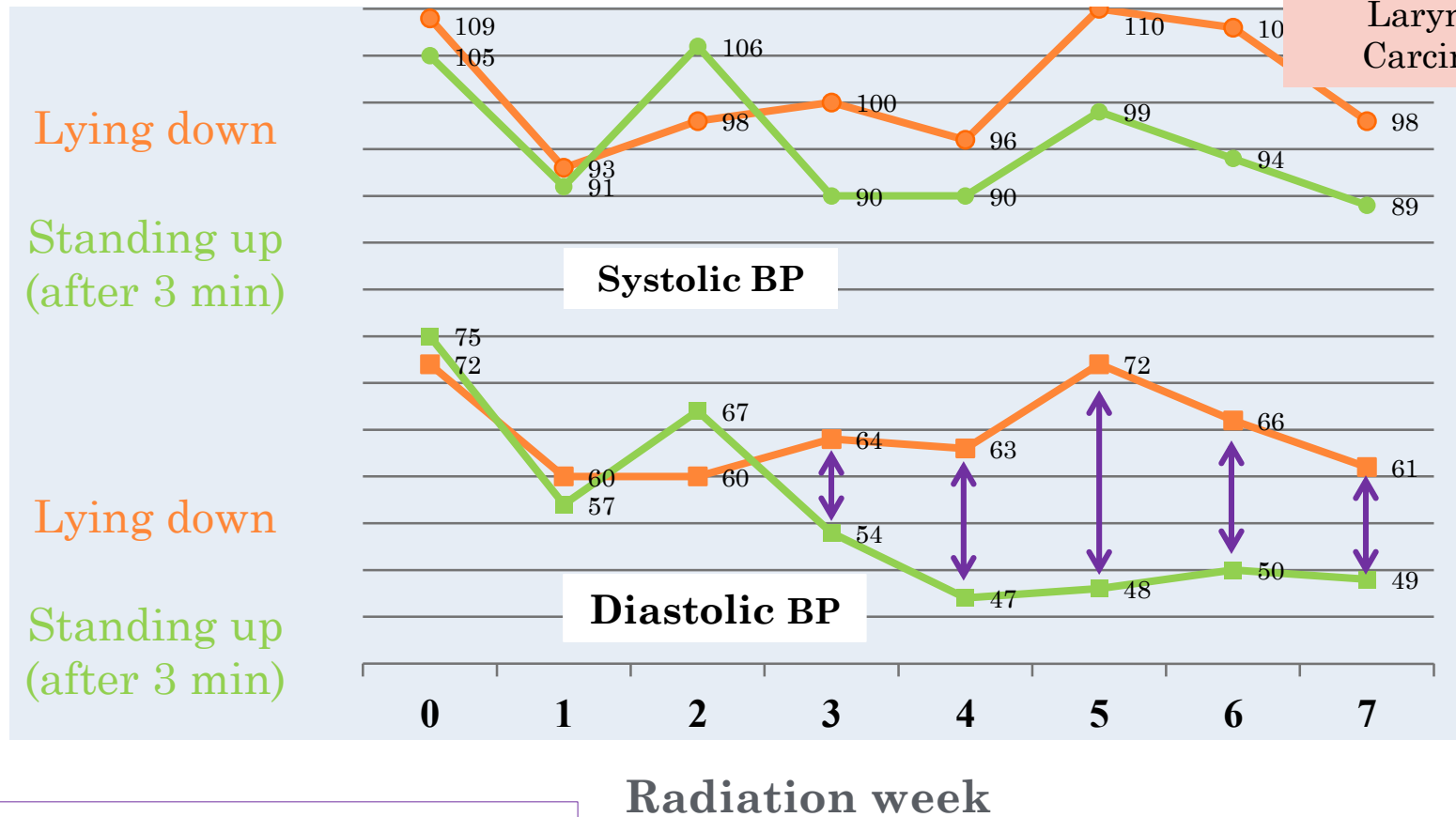


PARTIAL RESULTS



MEASURED BLOOD PRESSURE DURING RADIATION- BP MONITOR

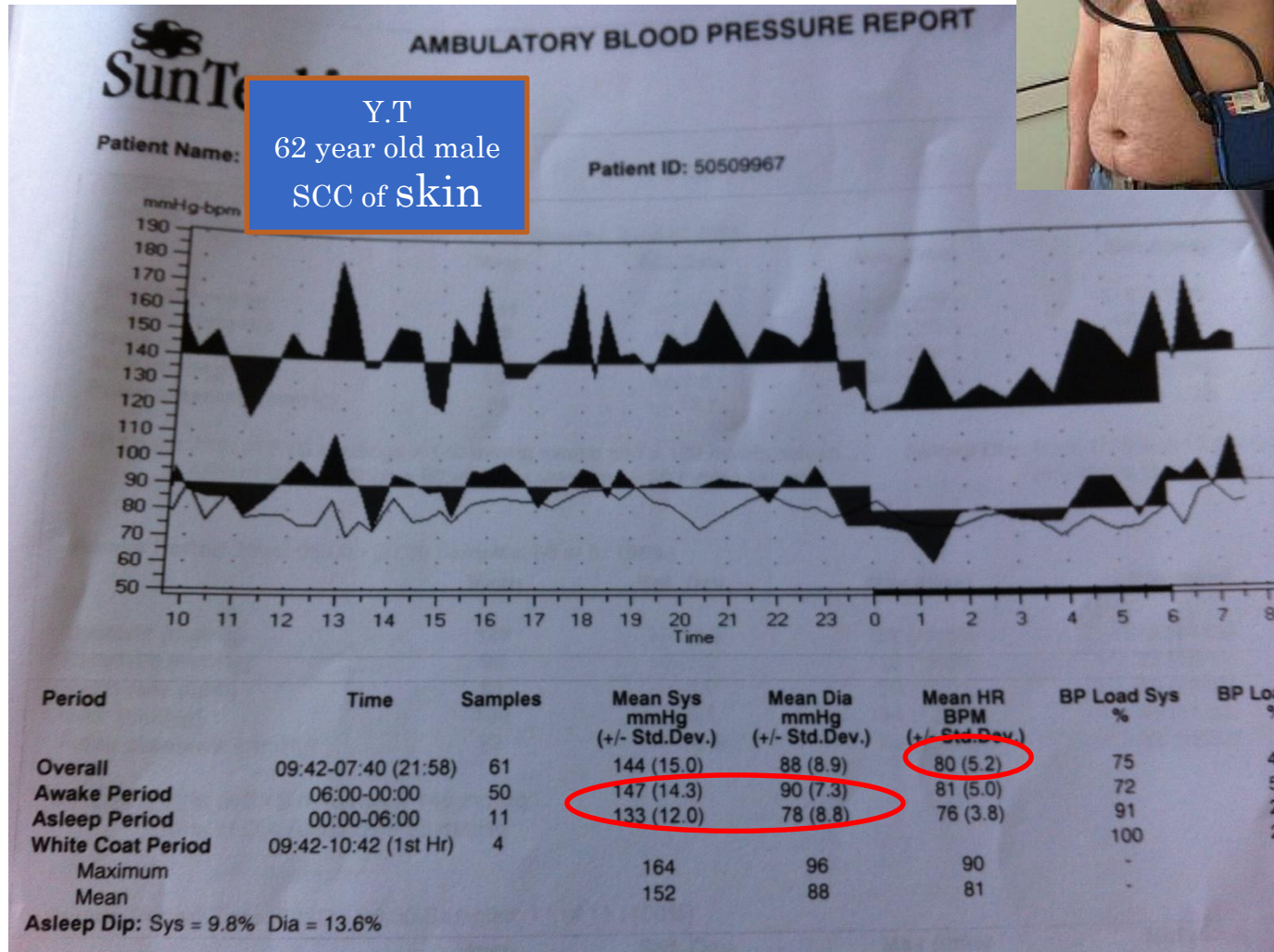
Patient n.2
Z.S
56 year old
Female
Laryngeal
Carcinoma



Classified as Orthostatic Hypotension



HOLTER MONITORING RESULTS



HOLTER MONITORING RESULTS

- Before radiation:

Avg. Blood pressure when awake: 147/90

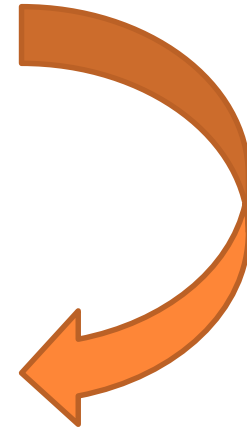
Avg. Blood pressure when asleep: 137/78

- After 4 weeks of radiation:

Avg. Blood pressure when awake: 124/76

Avg. Blood pressure when asleep: 124/74

- Avg. Heart rate changes from 80 to 107 four weeks later.



‘BEAT TO BEAT’ TEST RESULTS

- Normal
- No apparent baro-reflex failure (for now)



IMPORTANCE OF THE RESEARCH

- Lack of studies on this field
- Most important- cancer patients' morbidity and mortality.



THANK YOU!

