



Common side effects of radiotherapy

- Radiotherapy is a commonly used anticancer treatment
- It may be used alone or combined with chemotherapy or surgery
- Evidence based estimates indicate 52.7% of cancer patients should have radiotherapy during some part of their cancer journey



- The incidence of cancer is increasing
- The GP is going to have an increasing cancer workload
- Radical treatments are usually managed as a “bundle” with the treating team managing acute toxicity
- Palliative treatments have a great deal of overlap with GP care



- There is no other area of medicine where the cooperative efforts of so many medical professionals are required to optimise management than the care of those with malignant disease
- This is even more true of metastatic disease



Radiotherapy- mechanism of action

- Radiation causes ionising events within the tissue treated
- Ionising events damage DNA in the nucleus
- This damage is expressed when cells divide, the daughter cells are not viable, die and deplete the growing tissues of cells



- Depletion of cancer cells produces the benefit
- Depletion of normal cells the toxicity
- Normal tissues repair radiation injury better than cancer cells – as long as the doses are not “too high” and the gap between doses allows enough time for repair to take place



General principles

- The rate at which acute inflammation develops depend on the dose rate and the growth rate of the target tissue
- Skin usually reacts after 3 to 4 weeks and peaks at 6 to 7
- Mucosa after 2 weeks with a peak at 6 weeks

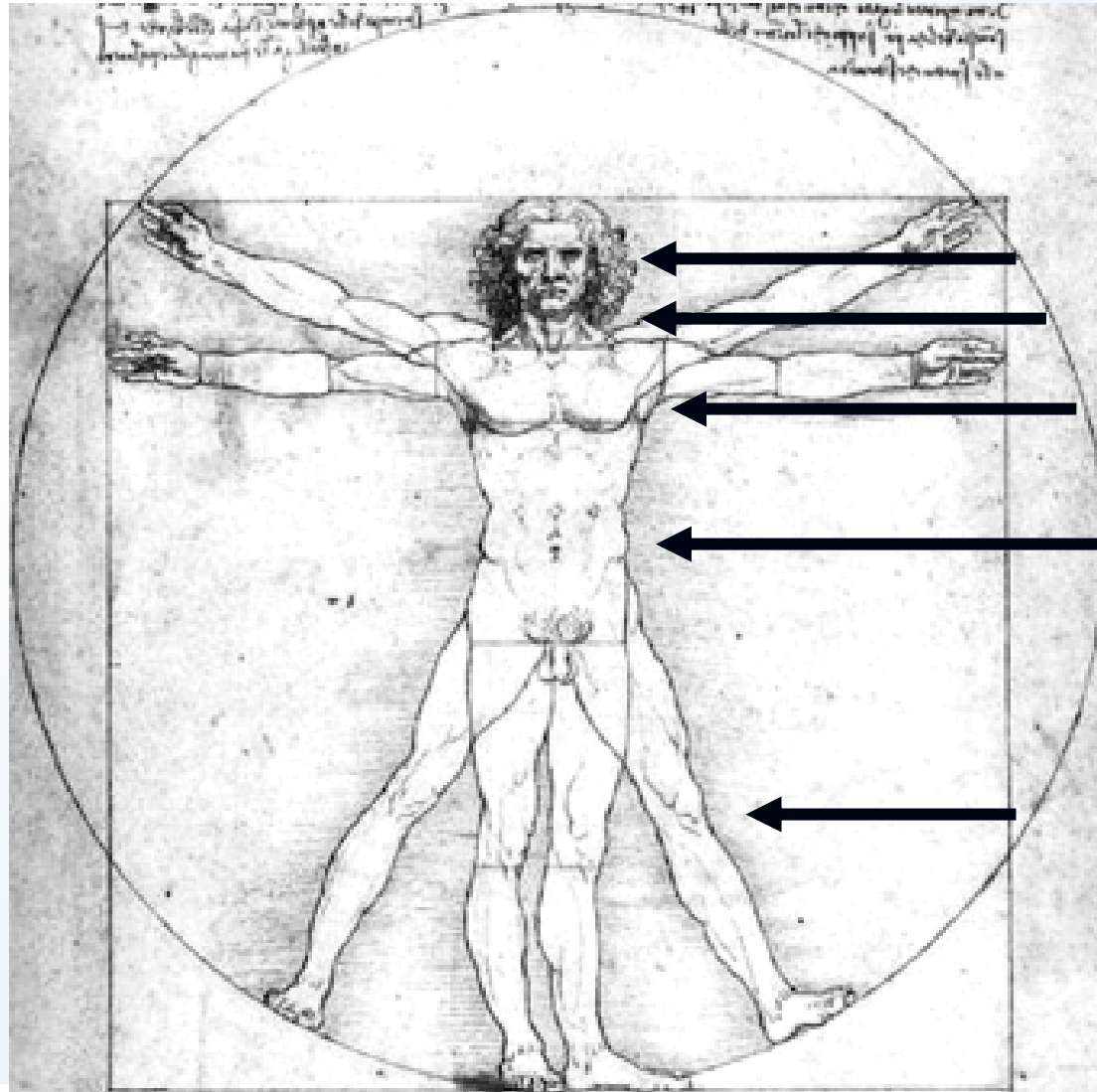


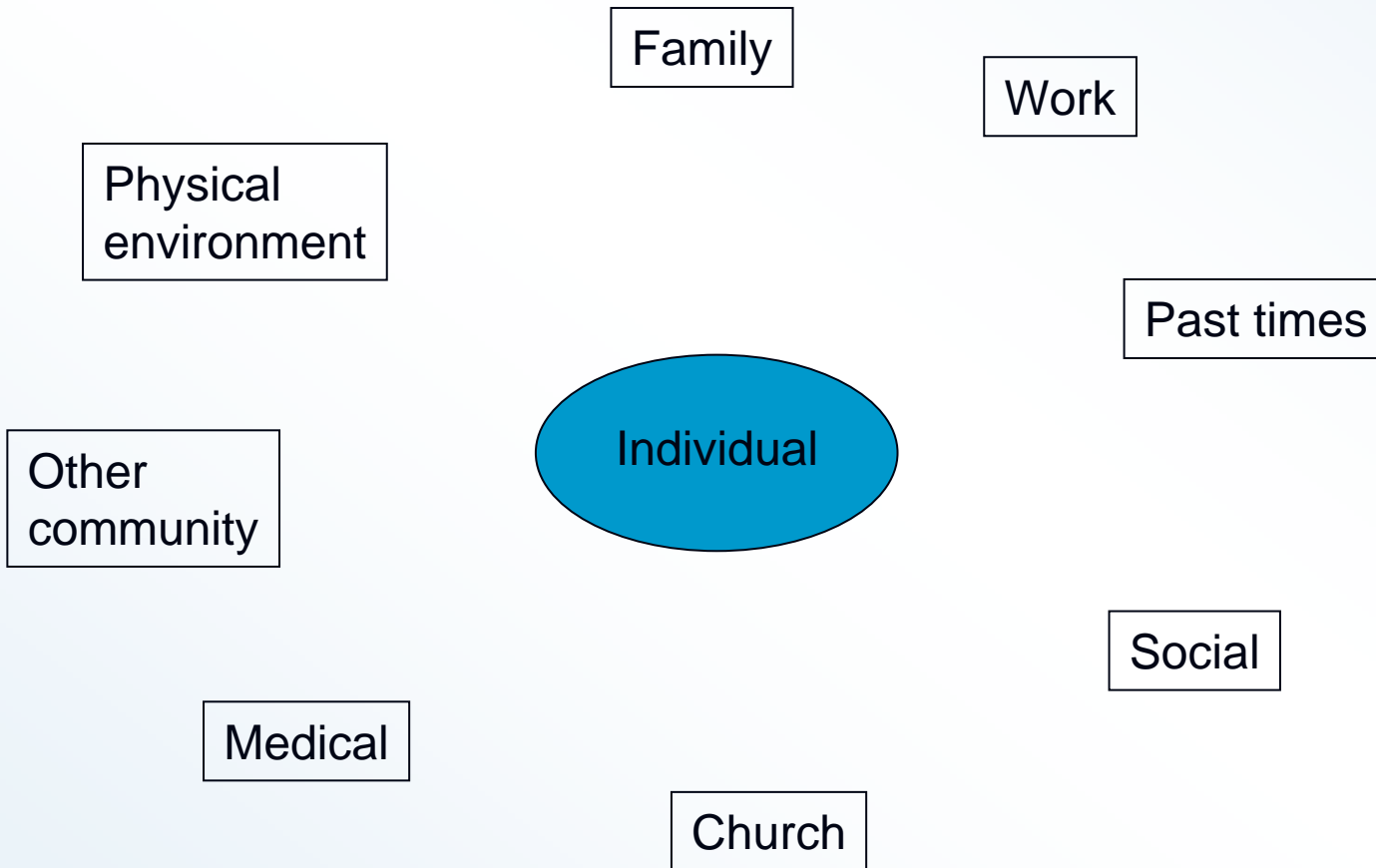
Examples using a regional approach and palliative treatments

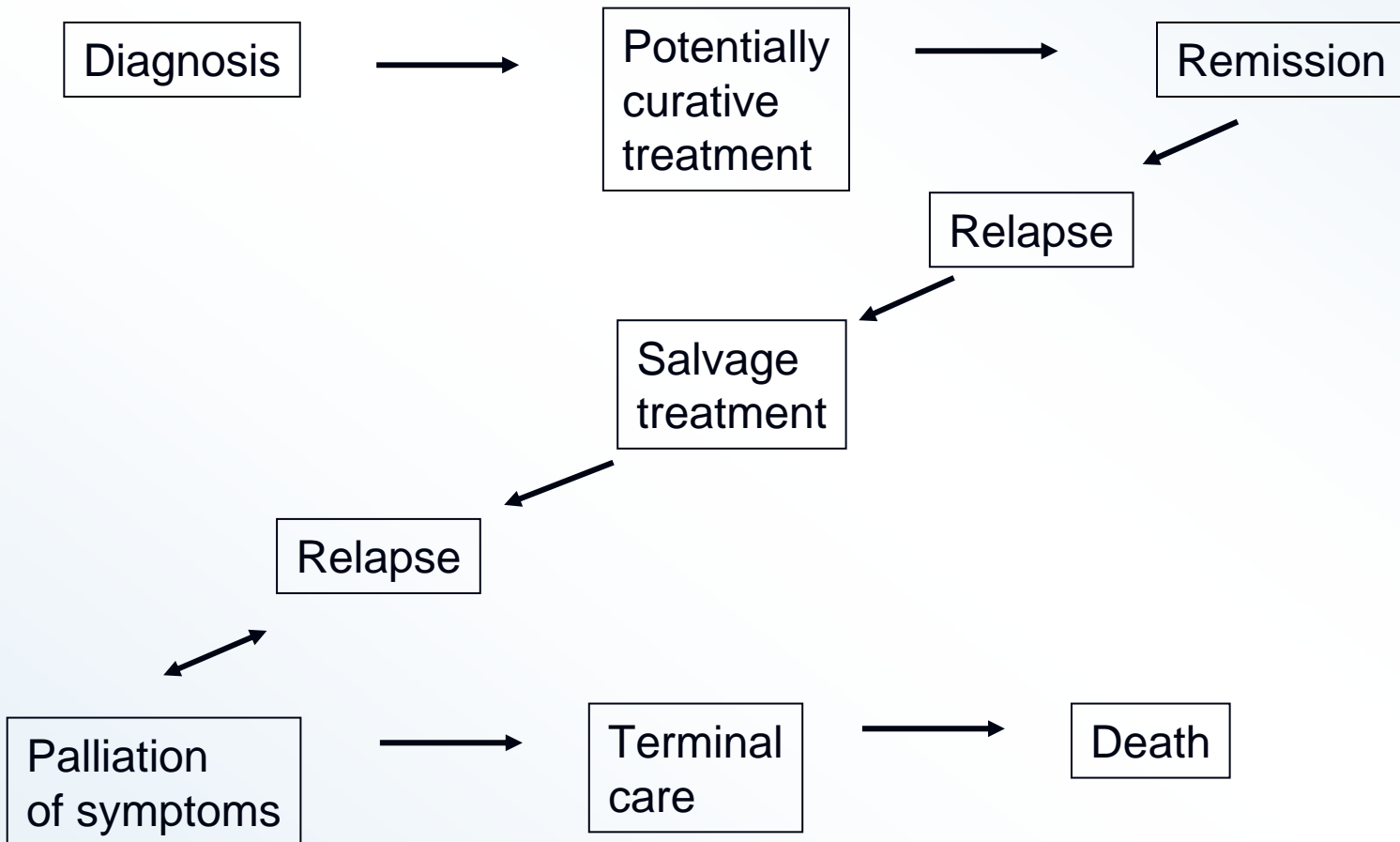
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Brain metastases 2

on suspicion

Symptomatic Treatment: steroids, analgesia and anticonvulsants

Confirm the diagnosis with a scan.

Complete staging investigations



General Assessment 1

Previous cancer history

Weight loss

Comorbidity

Performance status

Disease free interval



Specific assessment

Single v multiple metastases

Controlled or uncontrolled extracranial disease

Limited or severe weight loss

Slow or fast progression

Effective systemic treatment available



Brain Metastases

Outcomes

Steroids alone - median survival 1/12

Steroids plus WBRT - 3/12

Special cases – solitary – surgery and WBRT can be substantially better



Brain metastases and radiotherapy

Solitary and good group

WBRT 40Gy/20Fx/4weeks plus surgery or stereotactic radiosurgery

Surveillance MRI

Salvage



Brain metastases and radiotherapy

Poor prognostic group – options:

No treatment – terminal care

Steroids alone

Short course RT 20Gy/5Fx/1 week



Brain metastases and radiotherapy

Skin weeks 1&2 – nothing

3&4 – dry red itchy – hydrocortisone cream+ soothing lotion of choice eg aloe vera gel, vit E cream

5&6 – moist weepy especially around skin folds of auricle – saline, pawpaw

7&8 - recovery



Brain metastases and radiotherapy

Hair

weeks 1/2 – nothing

weeks 3/4 - patchy hair loss



Brain metastases and radiotherapy

General weeks 3/4 fatigue

no specific measures

stay active but exhausted is bad

can be a slump off steroids which need
to be reduced as tolerated



Head and neck cancer

Consequences of uncontrolled local disease are pain, bleeding, aerodigestive tract obstruction, pseudobulbar palsies and the smell.

Treatment options are long and short course with the toxicity being mucosal and skin



Head and neck cancer

Weeks 1/2 – nothing (acute parotitis)

Weeks 3/4 mild to brisk patchy ulceration

Weeks 5/6 painful confluent
desquamation, ulceration and edema.
Painful swallowing and superinfection
either fungal or bacterial

Weeks 7/8 recovery



Head and neck low toxicity

Princess Margaret 8Gy day 0,7,21

Single dose 5Gy per week or twice weekly for 3 to 5 weeks

Quad shot 3.5Gy twice daily with 6hr gap on 2 successive days



Hypofractionated regimes

The 3 previous schemes deliver very high biologically effective doses.

The response rate is high – 80 to 90%

The gap allows for repopulation of the mucosa avoiding the acute toxicity of protracted courses.



Hypofractionated courses

They can be repeated

The acute toxicity is much less

The shorter treatment times means patients have more time for themselves within their own environment



Lung

Single institution series have shown that radiotherapy alleviates:

Haemoptysis in 60 to 70% of cases

Pain from chest wall/ pleural/ nerve involvement in 60 to 90%

Over 3/12 after treatment



Lung

If the anticipated survival is less than 3/12 then 8Gy/Fx/ day 1 and day 8 is as effective as anything else.

Bulky disease in patients in good general condition may require higher doses and longer courses



Lung - toxicity

The esophagus is the most significant source of severe toxicity with painful mucositis following the same time course as head and neck cancer.

Skin – occasionally brisk reaction on back.

Lung – pneumonitis – a rare problem in palliative treatment. High dose steroids



Abdomen 1

Radiotherapy can relieve mass effect and stop bleeding in metastases or local spread into liver, kidney and bowel.

There is a limited evidence base.

Treatment courses are more protracted due to toxicity, predominantly bowel



Abdomen 2

Toxicity – all related to radiation inflammation affecting the stomach, small and large bowel.

Nausea – H3 antagonists are a major advance in the prevention of vomiting

- is usually immediate –
prophylactic treatment is best



Abdomen 3

Diarrhoea – beware spurious from opiates

- is usually gradual in onset and usually follows weeks 2 or 3
- lomotil/ Imodium/ opiates/ ORS
- generally much improved or resolved in 2 weeks of finishing



Pelvis

Relief of pain obstruction and mass effect from cancers of the bladder, bowel, prostate and uterus.

Hypofractionated treatment not commonly used

Toxicity is ‘mucosal’ dysuria and frequency, diarrhoea and skin reaction, sometimes nausea



Limbs

Toxicity is very limited.

Occasional patients get a brisk skin reaction requiring hydrocortisone cream

Fractionation regimes vary from short to long. Dense induration is very rare with conventional fractionation



Limbs

Remember, start symptomatic treatment at diagnosis : splint; sling; immobilise; partial weight bearing with frame or crutches.

Assess the risk of pathological fracture and the need for orthopaedic intervention



Summary

Consider patient, disease and treatment related factors

Are current symptoms due to mass effect?

If so radiotherapy may help.

Consider the Z, prognostic factors and mobility as this determines how aggressive treatment should be



Summary 2

Start symptomatic treatment

Consider consultation if appropriate

Involve carers in decision making



SROC/CCROC

State of the art

Multidisciplinary

Inpatient as well as community care

Appointments system to ensure rapid access to specialist consultation usually 1 or 2 days



Brain metastases

Common origin: breast; lung; bowel

Presentation: headache; neurological deficit; fit

Pattern: generally inexorable but can be stuttering.