The Use of Acupuncture for Side Effects of Cancer

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Cancer causes 26.2% of all deaths per year in the UK (2004)
28.8% of all male deaths
23.9% of all female deaths
Worldwide

- 54.5 million people diagnosed in the last 5 years
- 24.6 million (45%) alive after 5 years

_Cancer Research UK, 2007_

- Cancer is now classified as a chronic disease with physical and psychological sequelae

_Azis & Rowland, 2003_
Lance Armstrong
Winner, Tour de France 1999-2005
How Does Acupuncture Fit in?

Well – acupuncture has an increasing role in the treatment of cancer pain and symptom control.

In clinical practice, acupuncture treatment is rarely given alone, it is usually combined with a therapeutic interview - both of which may help the patient.
Principles of Treatment – Dual Approach

• Physical attributes of treatment
  Appropriate choice of acupuncture points and ‘dose’ for symptom control

• Psychological aspects of treatment
  A course of acupuncture gives a unique opportunity for psychological support alongside a course of treatment
Physical Attributes of Acupuncture
Mechanisms of Action

Endogenous opioids
- Enkephalins $\delta \uparrow$
- Dynorphins $\kappa \uparrow$
- $\beta$-endorphin $\mu \uparrow$

Up-regulation endogenous analgesic genes

Local anaesthetic blocks action

Autonomic effects

5-HT (serotonin)

Oxytocin

Endogenous steroids

Cholecystokinin $\uparrow$ CCK

Immunomodulation

Plus many other mechanisms

Pomeranz, 2000
Guo, 1996
Lee & Beitz, 1993
Zhang et al, 1998
Dundee & Ghaly, 1991
Lundeberg, 1999
Han & Terenius, 1982
Uvnas-Moberg, 1993
Roth, 1997
Zhou, 1993
Jonsdottir, 1999

3200 BC → 2009
Principles of Point Selection for Cancer Patients Using a Neurophysiological Approach that We Use in the UK

• Segmental points
  Segmental acupuncture is the technique of needling an area innervated by the same spinal segment as the disordered structure under treatment

• Strong traditional points eg LI4, LR3

• Trigger points - myofascial pain is common in cancer patients

• Sympathetic blocking points
  – T1-2 or T1-5
  – L1-2
Segmental acupuncture is the technique of needling an area innervated by the same spinal segment as the disordered structure under treatment.
Traditional Points e.g. LI4
Trigger points are used
• High proportion of *musculoskeletal* pain is myofascial arising from a ‘trigger point’
• Myofascial pain common in cancer patients – up to 34%
• Acupuncture is a powerful treatment to deactivate trigger points
Sympathetic Blocking Points

Paravertebral needling
Head & neck, upper arm
  T1-T2
  (also include C7)
  Chest
  T1-T5
Low back, lower limbs
Paravertebral needling
  include
  L1 & L2
Let’s look at an example …

Breast Surgery Related Pain

• Biopsy
• Wide local excision
• Axillary sampling or axillary dissection
• Mastectomy
• Mastectomy and reconstruction
  e.g. latissimus dorsi flap or DIEP
  (abdominal donor site reconstruction deep inferior epigastric perforator) flap
Pain Following Breast Surgery

- ⅓ have chronic pain following breast surgery
- ½ have pain after reconstructive surgery
- Younger patients more susceptible

This profoundly adversely interferes with quality of life and close contact with children and partners

*Williams & Filshie, 2004*
In many cases, acupuncture can reduce the neuropathic symptoms that prevent close physical contact with children and partners, without the need for long-term medication and its attendant side effects.
Intercostobrachial nerve damage is common at axillary dissection
Pain Post Axillary Dissection/Sampling

Note – Segmental and trigger points are both treated
Anterior Scar Pain Post Mastectomy

For hyperpathia in breast axilla we use a wide surrounding technique.
Acupuncture can restore colour to a discoloured limb and seems to be interchangeable with stellate ganglion blockade.
Pain Post Mastectomy and Radiotherapy
Extreme Case of Radiation Damage

Patient referred to us as tertiary referral
But note she was suicidal pre-treatment despite opioids and now needs no analgesics but needs indefinite top ups every 7-8 weeks.

However her paraesthesia remains.
### Results of One Breast Pain Audit

<table>
<thead>
<tr>
<th>Category</th>
<th>Improvement</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average pain</td>
<td>improvement</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Worst pain</td>
<td>improvement</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Distress levels</td>
<td>improvement</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Interference with lifestyle</td>
<td>improvement</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Pain behaviour</td>
<td>improvement</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Anxiety</td>
<td>marginal fall</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>significant fall</td>
<td>p&lt;0.05</td>
</tr>
</tbody>
</table>

67 patients  
average age = 56 years  
Time scale one month  
3 treatments  

Filshie et al, 1996
Pre-emptive peri-operative needling used to help prevent the acute to chronic pain progression
In order to reduce the possibility of postoperative pain becoming chronic – I use acupuncture immediately preoperatively and leave studs in until the patient is discharged.
Acupuncture may need to be used with medication. Acupuncture alone may be insufficient. Especially for latissimus dorsi reconstruction.
Forequarter Amputation
Phantom Limb Pain

Colder stumps ↑ pain

Sherman and Bruno, 1987
Kristen et al, 1984

Acupuncture → brief sympathetic stimulation followed by prolonged blockade

Ernst and Lee, 1986
Suggestions for Optimal Treatment for Phantom Limb Pain

• Treat *as early as possible* eg twice a week for 6 treatments + top ups to maintain analgesia
• Pre-emptive peri-operatively
• Sympathetic blocking points to increase the blood supply
• Local segmental points around stump (if tolerable)
• Contralateral ‘mirror’ points

∀ ± trigger point treatment for muscle spasm
Acupuncture for Chemotherapy-Induced Peripheral Neuropathy

• Affects 10-20% patients given neurotoxic chemotherapy
  Vinca alkaloids  Taxanes  Platinum analogues

• Pain/numbness and dysaesthesia hands and feet

• CV6  ST36  SI11

  Wong & Sager, 2006

• Sympathetic blocking points + distal points
  T1-T5  L1-L2

• Strong traditional points e.g. LI4 + TE5  SP6 + LR3

  JF, personal observation
Advanced Cancer-Related Dyspnoea
Advanced Cancer Related Breathlessness

Pilot study 20 patients

- Subjective improvement of breathlessness
  Borg VAS $P<0.005$

- Objective improvement of breathlessness
  Respiratory rate $P<0.02$

- Profound sense of relaxation $P<0.005$

- Limited duration

- 14/20 marked symptomatic relief from treatment

Filshie et al, 1996
Advanced Cancer-Related Breathlessness

Acupuncture reduced shortness of breath in subjective and objective measures

*Filshie et al, 1996*

RCT acupuncture v morphine v acupuncture + morphine

*O’Brien M & Filshie J (underway)*
These points are now called ASAD Points

(Anxiety, Sickness And Dyspnoea)
They are widely used in the UK for palliative care of dyspnoea.
Common Causes of Nausea and Vomiting in Advanced Cancer

- Gastrointestinal problems eg intestinal obstruction/oral Candida
- Drugs eg opioids, antibiotics, iron etc
- Metabolic - hypercalcaemia, renal failure
- Radiotherapy and chemotherapy
- Brain metastases
- Psychological symptoms eg anxiety, fear
- Pain
- Dehydration
Treat cause of nausea and vomiting if possible
PC6 main point

Lee & Done, 2004
Ezzo et al, 2005
Streitberger et al, 2006
• Add extra points if no significant gastrointestinal obstruction

eg: CV12 (REN, Zhongwan)  ST25  ST36  ASAD
Acupuncture for Hot Flushes and Night Sweats

6 weekly treatments
LI4   TE5 (SJ or triple warmer, Waiguan)   SP6   LR3 + ASAD x 2
NB avoid limb post axillary dissection
Self needling with ‘one off’ needling or indwelling studs used for up to 6 years
79% get 50% or greater reduction in hot flushes
Algorithm for treatment given

Filshie et al, 2005
We teach patients to self needle safely at SP6 ± LR3 on a weekly basis at home – or to insert semipermanent needles at SP6 which can stay in for a week at a time.

We have devised an algorithm:

Bladder Urgency, Frequency and Nocturia

Kelleher et al, 1994
Mr SG
Date of Birth 1931

- Urinary incontinence after laparoscopic radical prostatectomy
- Urgency
- Nocturia
- Constant incontinence
- Needs pads day and night
Points Used

- LI4, ST36, SP6, CV3 (REN3, Zhongji) or CV4 (REN 4, Guanyuan)
- 2 bilateral paravertebral points L1 & L2
- 2 bilateral sacral points
These points can be useful for frequency, incontinence and sometimes post prostatectomy.
Results

• No change after 3 weekly treatments
• 4\textsuperscript{th} treatment some benefit
• 5\textsuperscript{th} treatment dramatic $\downarrow$ nocturia
  $\downarrow$ incontinence $\downarrow$ frequency
  $\downarrow$ stress incontinence
• 6\textsuperscript{th} treatment minimal incontinence
Occasionally people get radionecrotic ulcers which classically never heal. This next slide shows healing in an ulcer in a patient too unwell for surgery with acupuncture.
Radionecrotic Ulcers
This was a challenge after a failed skin graft – but it healed with acupuncture over time.
Sympathetic Blocking Points

Paravertebral needling
Head & neck, upper arm
T1-T2
(also include C7)
Chest
T1-T5
Low back, lower limbs
Paravertebral needling
include
L1 & L2
These are points I have found most useful and interchangeable with stellate ganglion blockade. For example:

I was taught to do lots of nerve blocks when I started to work in pain management. One patient who had a severe radiation injury and a flail right arm had monthly stellate ganglion blocks. On her 24th block she had a fit after only $\frac{1}{2}$ ml local anaesthetic was injected. She recovered very quickly fortunately and I used acupuncture the next time. This worked just as well but only for three weeks at a time rather than four. So I switched to using acupuncture from then on.
Radiation Rectitis
Principles of Treatment

• Sympathetic blocking points L1 + 2
• Gastrointestinal paravertebral abdominal points
• Sacral points S2  S3

∀ ± points surrounding the ulcerated area
• Up to 12 weekly treatments initially
• Monthly treatments
Note:

Normally a 6 week course of treatment but 12 for this on account of the challenges to healing in the rectum due to rectal contents.
MR SM

- Aged 71
- Cancer prostate diagnosed 2003
- Neoadjuvant hormone treatment + radiotherapy
- Radiation proctitis & rectal ulceration – radionecrotic ulcer
- No response to hyperbaric O$_2$, Pentoxifylline
- Pain despite high dose Fentanyl and gabapentin
- Scheduled for colostomy
Plan – 12 weekly treatments
1st treatment no relief
Some relief few days after 2nd treatment
Colostomy cancelled
Rectal bleeding ↓ after 8th treatment
Abdominal pain ↓ after 12 treatments
↓ Fentanyl 50μg then ↓ 25μg
+ bleeding controlled
Monthly treatments needed
Very pleased with ongoing relief
Mrs JS

Aged 61

Cancer of uterine cervix 2 years – post chemotherapy, radiotherapy and brachytherapy

Breast cancer also diagnosed 4 months ago

Symptoms

• Hot flushes since Tamoxifen – 28-29 per day, 5-6 drenching at night
• Dyspnoea since bronchiectasis as child
• 8 months diarrhoea, rectal bleeds, radiation rectitis
• Longstanding bladder problems with nocturia and frequency
• Hot flushes ↓ 70% (maintained response)
• Dyspnoea helped significantly post first treatment (maintained response)
• Irritative bladder help -sustained
• Rectal bleeding stopped but starts if she forgets/delays treatment
• Weekly self treatment maintains her response in the following locations

± LR3  SP 6 bilaterally
Cancer Related Fatigue Post Chemotherapy

• Cohort study
  37 patients 31 completed the study
• Mean improvement of fatigue scores 31.1%
  Vickers et al, 2004
• Acupuncture vs acupressure vs sham acupressure
• Acupuncture improved fatigue by 36% and greater than 2 control groups
  Molassiotis et al, 2007
• ST36  SP6  most useful points
• Further RCT funded by Breakthrough Breast Cancer in progress
We are doing this trial in London and Manchester -
• 6 weekly treatments then 4 other weekly treatments by therapist, or by self treatment by patient, or no treatment
• To assess if the relief can be maintained
Safety

• Good safety record of acupuncture – 66,000 prospective treatments
  
  White et al, 2001
  MacPherson et al, 2001

• Oncology patients – vulnerable with often rapidly changing clinical picture

• Orthodox diagnosis first and treat alongside conventional treatment

• Acupuncture treatment is more complex in cancer care

• Safety aspects in palliative care reviewed
  
  Filshie, 2001
Contraindications and Cautions

Guidelines for safe treatment

Filshie & Hester, 2006
Acupuncture can mask symptoms of cancer and is contraindicated if there is an unstable spine from cancer.
It could theoretically remove protective muscle spasm around an unstable area and so avoid in case it could indirectly contribute to cord compression/transection.
• As survivorship increases with all the advances in oncology, we should plan to treat patients who respond well to acupuncture for symptom control long term or even indefinitely for their physical problems

• A course of treatment can also be used to support patients psychologically through their cancer journey
Further Promising Areas for Research

• RCTs pain control
• Dyspnoea
• Breast pain post axillary dissection
• Anxiety in cancer patients
• Fatigue in cancer patients
• Bedsores & ulcers     Healing in general
• Plastic surgical skin flap survival
• Why does tolerance occur in advanced/metastatic disease?
• Safety of acupuncture in cancer patients
Xerostomia

More than 70% of severely ill cancer patients suffer from dry mouth or xerostomia

Common reasons

• Opioids
• Anticholinergic drugs
• Antihistamines
• Dehydration
• Previous radiotherapy for head & neck cancer

• 3\textsuperscript{rd} most distressing symptom

*Davies et al, 2001*
Treatment Principles for Xerostomia

• Local treatment on face
e.g. ST2  LI20  GV26

• Auricular points
in region to stimulate
parasympathetic control

• Strong distal points
e.g. PC6 stimulates parasympathetic
+ LI4
Possible Mechanisms

↑ volume  parasympathetic stimulation  
Lundeberg, 1999

↑ viscosity  sympathetic stimulation

↑ VIP  
Davidson et al, 1998

↑ C-GRP  
Davidson et al, 1999

But …

No quick fix - multiple treatments necessary