

Dental care of cancer patients before, during and after treatment.

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According to Cancer Research UK there were 352,197 new cases of cancer diagnosed in 2013. So the question arises, how can we, as health professionals, best look after and advise these patients before, during and after treatment? Our mouths are the window to the body and it is important we treat the body holistically, not solely the area of cancer that is affected.

The difference between chemotherapy and radiotherapy.

Chemotherapy-

“Chemotherapy uses anti-cancer (cytotoxic) drugs to destroy cancer cells. The drugs also affect healthy cells, causing side effects such as feeling sick or an increased risk of infection. Unlike cancer cells these cells usually repair themselves. Most side effects improve when treatment is finished.

Chemotherapy can be given as a main treatment or after other treatments to reduce the risk of the cancer coming back. Or, you may have it to shrink a cancer before surgery or radiotherapy. It is sometimes combined with radiotherapy (chemoradiation). Chemotherapy is also given to control cancer that has spread and to relieve symptoms.

The chemotherapy you have will depend on different things, such as the cancer type, the risk of it coming back, or whether it has spread. Some people have tests during treatment to check if the cancer is responding to chemotherapy.

You usually have chemotherapy by injection or a ‘drip’ into a vein, or as tablets. Sometimes, it’s given in other ways, such as into the spine or into the bladder, depending on the type of cancer.” - Macmillan.org.uk

Radiotherapy-

“Radiotherapy uses high-energy rays to treat disease. It can be given both externally and internally.

- External radiotherapy aims high-energy x-rays at the affected area using a large machine.
- Internal radiotherapy involves having radioactive material placed inside the body.

Radiotherapy works by destroying cancer cells in the area that’s being treated. Normal cells can also be damaged by radiotherapy, which may cause side effects. Cancer cells cannot repair themselves after radiotherapy, but normal cells usually can.

You can be given radiotherapy for different reasons. Doctors can give radiotherapy to try and destroy a tumour and cure the cancer. This is called curative treatment. It may be used with other treatments, such as surgery or chemotherapy.

If it’s not possible to cure the cancer, doctors may give you radiotherapy to help relieve symptoms you have. This is called palliative treatment.

The type of radiotherapy you're given will depend on the type of cancer you have and your individual situation." - Macmillan.org.uk

So how do we prepare patients before treatment starts? The priority is to help the patient to reach the end of their treatment with as little damage to the oral cavity as possible. It is important at this early stage of diagnosis that we are mindful of our patient's thoughts and feelings. We also have to understand that some patients may be reluctant to take advice as they may be psychologically affected and overawed.

The risks of the side-effect of treatments need to be explained to patients, and although not all these can be avoided, they can be minimised by following advice that can be given by the dental team. The added complication of the different individual reactivity of each patient to the chemicals and therapies must be taken into account.

1. **Xerostomia.** Dry mouth affects mastication, speech and swallowing. Saliva contains enzymes lipase and amylase for balancing the mouth and breakdown of lipids.
2. **Infection.** Oral mucositis is caused by the imbalance of the mouth allowing candida albicans to proliferate due to the weakened patient's immunity.
3. **Burning, swelling or peeling of the tongue.** This may be more common in patients who have been treated for a head and/or neck cancer. A nasty side effect as nerve endings can be damaged through treatment. Burning mouth can be a long term issue for the patient to manage. Hot and spicy foods will need to be avoided.
4. **Change of taste.** This may also be more common in patients who have been treated for a head and/or neck cancer. Due to destruction of the patient's taste buds this may or may not be a long term effect of treatment.
5. **Decay.** There is a high risk of caries with these patients especially root caries. These surfaces are tricky to treat in a routine patient so for this category of patients we must take extra care and use as many preventative measures as possible.

Dental treatment options to be considered before patient treatment starts.

Dental professionals have a real opportunity to help patients with a 'belt and braces' approach. There are many products to recommend, prescribe and ultimately help patients. Promoting a good controlled diet is the ideal. However, the priority for many patients is the consumption of any nutrients, without considering the damaging effects of sugar. This especially applies to patients being treated for oral cancer. Extractions of vulnerable teeth should be completed before radiotherapy as extractions after treatment may result in bone necrosis, especially after oral radiotherapy.

Two weeks before treatment patients should be encouraged to reduce their oral bacterial load. Patients have a choice of Corsodyl or Curasept mouthwashes containing the active ingredient chlorhexidine gluconate. For best effectiveness, patients should check which toothpaste to use, whether SLS free or not, and also check how soon after brushing these mouthwashes may be used.

Patients will need to be warned of the damaging effects of high calorie drinks which may be recommended to them due to their lack of appetite. Patients should be encouraged to consume these rapidly because these drinks are high in sugar and will cause decay if drunk over long periods of time. Patients should be advised to mainly drink water, sugar free drinks,

or suck ice chips. If patients wish to have other drinks encourage them to be sugar free and to alternate with water as far as possible. Some patients may be recommended pineapple, fresh or tinned, as it contains the enzyme bromelain that helps to break down proteins and can also help with a metallic taste some patients complain of after chemotherapy, but these may also cause caries and erosion.

Examples of beneficial products.

1. Fluoride toothpaste.

- I. Public Health England (PHE) – Delivering Better Oral Health: an evidence-based toolkit for prevention third edition 2014 recommend high fluoride toothpastes. Duraphat 5000 toothpaste, for patients over 16, Duraphat 2800 toothpaste for patients over 10 years old. These are prescription high fluoride toothpastes which only require a pea size amount on the toothbrush ideally twice per day. Cancer patients with a lack of saliva are categorised as high risk of coronal caries and root caries because of the lack of saliva. For head and neck cancer patients, fluoride toothpastes can be applied to the teeth overnight in custom made dental trays to increase the efficacy.
- II. Oranurse supply toothpaste which is a non-flavoured and SLS (sodium lauryl sulphate) free fluoride toothpaste. This contains sodium monofluorophosphate 1450ppm fluoride. The use of SLS free toothpastes may reduce the incidence of oral ulcers.
- III. Bioextra toothpaste market a toothpaste which contains sodium monofluorophosphate 1500ppm fluoride, natural enzymes and xylitol and is also SLS free.

1. Fluoride varnish treatment.

For high risk patients Public Health England (PHE) recommend a high fluoride varnish to be applied professionally to the teeth and any exposed root surfaces at six monthly intervals. There are a few choices of varnishes becoming available but currently PHE recommend Duraphat varnish containing calcium fluoride 22,600ppm. Contraindications should be observed.

3. Toothbrush.

A patient may or not be able to manage a toothbrush. An electric toothbrush is ideal but anything in the mouth may be too tender. To help a patient achieve good plaque control we need to find a brush which a patient can manage in their mouth.

Curaprox market a soft headed surgical toothbrush, which is useful as the head is small and the filaments are very soft.

4. Mouth rinses

If a patient is not able to tolerate a toothbrush or toothpaste, then another option is a fluoride containing mouth rinse. PHE recommend using a fluoride mouthwash (0.05%) at a different time to brushing as rinsing straight after brushing reduces the beneficial effect of the toothpaste.

5. Dry mouth products

Some patients develop a very dry mouth and require mouthwashes and gels purely for lubrication.

- I. Bioxtra mouth rinse, gel and gel mouth spray contain lactoperoxidase, lysozyme and lactoferrin enzymes. The mouthwash is alcohol free without menthol or foaming agents. Bioxtra mouth gel can provide lubrication for many hours. For longevity, a small pea size of gel should be placed on the back of the hand, then rubbed between finger and thumb and applied around the oral tissues. Bioxtra mouth rinse and Bioxtra gel mouth spray contain xylitol and fluoride. Bioxtra gel and Bioxtra gel mouth spray – contraindications- milk and egg allergies.
- II. Gelclair is available on prescription or online and can be used either in dilution or straight onto the tissues to help lubrication and protection of the mucosa by producing a protective barrier.
- III. Benzydamine (Difflam) mouthwash or spray are available to purchase or on prescription and act as an analgesic, anaesthetic and anti-inflammatory. Contraindications – Age restrictions and allergies to ethanol (mouthwash) and glycerol (mouthwash and gel)
- IV. Gengigel is a natural product available to buy and comes in a gel and mouthwash and has no contraindications. Gengigel contains the active ingredient hyaluronan and some patients find this very soothing especially for oral ulceration.
- V. OraCoat's XyliMelts lozenges are all natural and are made from xylitol and an oil lubricant. With their adhering and fully dissolving disc technology they are able to stay in situ and promote saliva, day or night, whilst helping to inhibit decay.

Calcium repair mousse.

GC produce two calcium repair products - tooth mousse and MI paste available in a choice of flavours. Tooth mousse is safe for babies and pregnant women and can be used with Duraphat 2800/5000 toothpaste. MI paste, safe for children 6 yrs, can only be used with Duraphat 2800 toothpaste. This product has the benefit of pushing calcium and phosphate ions back into the tooth surface. Apply a small pea size amount on the end of the tongue and then lick it around teeth or applied on the end of a clean finger and wipe around. Contraindications - for milk.

6. Interdental cleaning.

Controlling biofilm in these inaccessible areas is difficult, but should be attempted by patients. If it is possible there are many choices of TePe interdental brushes, Wisdom Clean Between brushes and OralB Glide Floss picks. A Waterpik Ultra Water Flosser or Philips Sonicare Airfloss may be an easier option to consider. These can be used with warm water to make the cleaning more comfortable. Ideally to be used before tooth brushing to not wash away the benefits of the fluoride toothpaste.

7. Chewing gum and sweets.

It has been found that saliva production can be stimulated when chewing gum so encouraging the use of sugar free gum and ideally versions that contain xylitol can help with lubricating and reducing decay.

Peppersmith's produce a range of xylitol sweets and gum in a variety of flavours so helping with the change in taste and helping to reduce decay.

After treatment the patient should be encouraged to attend regularly for examinations and ongoing care with their dentist and hygienist for preventive advice and treatment, and to give patients reassurance about their recovery process. The optimal timing of this will be decided by the specialist and will depend on the patients type of treatment and how they have responded. The specialist may recommend a prescription mouthwash such as, calphosol or mugard, to help alleviate the patient's mucositis.

For some head and neck cancer patients (HNC) the severe problem of osteoradionecrosis (ORN) cannot be avoided. Regular dental visits for checking oral health and helping to prevent infections and caries, especially root caries, are of utmost importance for this type of patient. These patients must continue using a high fluoride toothpaste and tooth mousse/MI paste long term as a good regular daily preventative routine is paramount for these high caries risk patients.

Dentistry is an ongoing science, based on evidence and communication, so why not build up a rapport with your local oncology department and team, perhaps arranging a visit to them as they will be more than happy to help with current guidelines and answer any questions.

Good luck!