***What is a Burning Mouth Syndrome?***

* Under the latest classification by the International Classification of Orofacial Pain Committee (2020), BMS is defined under idiopathic orofacial pain.
* It is an intraoral burning or dysaesthetic sensation, recurring daily for more than 2 hours per day for more than 3 months, without evident causative lesions on clinical examination and investigation.
* The oral mucosa appears to be of normal appearance and no local or systemic causes contributes to the pain.
* Patients may have sensory changes such as hypoaethesia or hyperalgesia and allodynia – (numbness, increase sensitive to pain, pain due to stimulus that does not normally provoke pain)

***What are the symptoms?***

* The main symptom of BMS is intense hot, burning or scalded sore sensation.
* Patients also describe 'tingling' and altered taste
* BMS may affect any part of the oral cavity, although commonly the tongue and bilateral. This sensation can affect the tongue, gums, lips, palate, and buccal mucosa either individually or collectively
* Often the soreness occurs spontaneously with continuous gradually continuous increasing of burning pain, progressively worsens throughout the day (usually lowest upon awake, worsening after the first meal and reach maximum pain intensity in late evening).
* Equally, patients have reported random patterns of soreness, which can typically involve whole days of soreness followed by 'pain free' days.
* The pain intensity varies from moderate to severe.
* Other symptoms may include a degree of dry mouth (xerostomia) and alteration in taste sensation (bitter, metallic taste & supertaster).
* Associated with psychology disorders such as anxiety, depression, irritability, cancerphobia.

***How does someone know they have the condition?***

* Diagnosis of BMS is usually made by exclusion of local or systemic condition and is primarily based on patient’s history.
* A typical picture would involve a 3-month history of soreness on most days, with no identifiable medical or dental causes.
* Investigations include:
	+ Detailed oral clinical examination
	+ Mouth swab - candida with/without bacterial or viral infections
	+ Blood screening to exclude haematinics disorders (ferum, ferritin, folate, B12, zinc), blood dyscrasia (FBC), liver and renal diseases, thyroid functions, autoantibody profiles and diabetes.
	+ Social history - evidence of stress, anxiety, depression
* Additional investigations may be performed such as cytological smears for candidiasis, allergy test, salivary flow measurements, hormonal examinations and gastrointestinal diseases, imaging, medication adjustment and psychological questionnaires.

***How can people avoid the condition?***

As yet we do not understand how BMS starts, and there are several theories about it having a genetic basis, a neuropathic basis involving either or both the peripheral and central nervous systems. So it is unclear how to avoid getting this disorder.

Once you have BMS to minimise discomfort

AVOID - Exacerbating factors

* Hot and spicy (e.g., chilly, curry), citrus and acidic foods and juices (e.g., tomatoes, orange juice, carbonated beverages, coffee
* Alcohol and smoking/tobacco
* Mouth rinses with alcohol
* Toothpaste abrasive substances
* Cinnamon or mint flavour
* Stress
* Fatigue

MAY HELP - Relieving factors

* Eating or drinking specific blend diets
* Sucking on crushed ices or a sugar-free candy
* Chewing sugar-free gums
* Sipping water often
* Sleep or rest
* Relaxation or recreation time & distraction activities (e.g., hobbies, exercise)

***Do you have any up-to-date statistics on how many people suffer from the condition?***

* The implementation of more precise BMS diagnosis criteria has narrowed the prevalence range between 0.1% to 3.7%.
* BMS predominantly affects middle-aged and older women, which are in the peri and post-menopausal stage (5th to 7th decade)
* The condition appears to be much less common in men. The female to male ratio is 7:1.
* The prevalence of BMS increased remarkably at the age after 60
* As no known exact causes of BMS, it is hard to plan a correct course of treatment. BMS is a long-term condition that could affect you for months, years or perhaps the rest of your life.
* 50% of BMS patients reported to has improvement of symptoms within 6 to 7 years of onset with treatments and spontaneous remission rates of 20%.
* 20% to 30% of patients with chronic pain to have suicidal intention in the past with 2 reported cases in Japan

***Why does it affect some people and not others?***

***What causes the condition?***

* The aetiology of BMS remains not fully understood.
* However, studies have been showing increasing evidence of BMS as neuropathic pain with central and peripheral nervous system involvement.
	+ Centra nervous system:
		- Hypofunction of the dopaminergic pain inhibitory pathway
		- Presence of 957T allele that may contribute to with orofacial neuropathic pain that depletes dopamine levels for pain inhibition.
		- Parkinson’s disease patients may be susceptible to burning mouth syndrome, but the link between BMS and Parkinson disease varies from poor to moderate. The reported prevalence of BMS seen in Parkinson disease was between 4% to 24%
	+ Peripheral nervous system – with pathological and physiological changes of nerve fibres or receptors in the oral mucosa and taste nerve fibres.
* Psychology
	+ 80% of BMS patients have depression, anxiety disorder, and other chronic pain conditions before the onset of BMS
* Neurosteroids
	+ Chronic anxiety, depression, or post-traumatic stress disorder, and menopause or gonadal hormonal imbalance led to the changes of adrenal and gonadal steroid production. These neurosteroids provide neuroprotective against nervous system injuries and diseases, facilitate nerve regeneration, and synthesise neurotransmitters.
* Burning mouth condition / sensation that are associated with systemic factors such as diabetes, hormonal changes, nutritional deficiencies and psychological disorders; or local causes including oral infections, allergies, salivary gland dysfunction, dental treatment and ill-fitting dentures, are known as secondary BMS and is not true BMS.

***What treatments are available and how are they administered?***

* BMS management remains a challenge as there is no organic cause.
* Primary BMS can be challenging to treat and the treatment may involve several different methods before an improvement is seen.
* Reassurance play a vital part of the overall BMS treatment plan, especially in a very anxious or cancerphobia patient.
* Treatment for BMS aims to alleviate the symptom and is primarily via pharmacology for neuropathic pain such as antidepressant, anticonvulsant and benzodiazepines.
	+ Topical clonazepam rinse (twice or 3x daily)
* Patients with BMS usually benefit from reassurance and a combination of one or more of the treatments mentioned above.
* Cognitive behavioural therapy may be helpful to improve BMS symptoms. Trying not to focus on the feeling, learning to live with the sensation, and remembering that no severe disease has been found can sometimes be the best way of managing this common problem.
* Alternative non-pharmacological therapy options such as
	+ acupuncture
	+ nutritional supplement (alpha-lipoic acid, vitamins),
	+ topical capsaicin (red-pepper) rinse
* Psychological support -- if you developed symptoms of depression, anxiety or other mental health conditions related to BMS
* It is vital to treat any underlying systemic conditions that have been noted from blood or other investigations which may give rise to the burning pain.

***Anything to add?***

* Further information**:** ***orofacialpain.org.uk*****.**
* Contact : tara.renton@ kcl.ac.uk
* Coming project/research in King’s College London.
	+ Non-invasive MRI neuroimaging study on BMS patient with the primary aim to study the central and peripheral neural mechanism of BMS patients.