Gaining confidence in local anaesthesia

CPD: ONE HOUR

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Dental therapist, tutor and coach **Christine Macleavy**[1] provides her top tips for administering local anaesthesia and inferior dental nerve blocks (IDB), for dental hygienists and therapists.

The early days of IDBs

I have been running local anaesthesia (LA) refresher and inferior dental nerve block (IDB) courses for dental hygienists and dental therapists for many years now, and even a few dentists have come along from time to time and enjoyed my approach.

It is reassuring for us as dental hygienists and therapists to realise that we can all lose a bit of confidence; attending a refresher course is a great way to regain that confidence and refresh our knowledge in a safe and supportive environment.

I remember my extended duties training in IDBs way back in 2003. I was fortunate to do the course with the Oxford Deanery and it was my senior dental officer from the Community Dental Service that agreed to deliver the course. Her IDBs always worked first time and the patients, all children and adults with special needs, hardly ever complained. She was also very supportive of dental therapy and dental hygiene.

As it happened, I facilitated these extended duties courses on behalf of the deanery, and ended up sitting through the lecture eight times, at eight different venues and was demonstrated on eight times.

My first IDB refresher was a couple of years later at Stoke Mandeville Postgraduate Centre - I was a little late arriving. Wayne Williams, the course lecturer, must have been introducing himself as I entered the room. He looked at me firmly and said 'Are you South African?' Without missing a beat I retorted 'Are you Gary Lineker?' Well, I thought he looked like Gary Lineker and it was the first thing that popped into my head!

[1] *Christine began her dental career as a dental nurse, qualifying in the Women's Royal Naval Service (WRNS). From there she went to New Cross Hospital in London where she qualified as a dental therapist in 1979. Since then Christine has worked clinically as a dental therapist for Northamptonshire Community Dental Service. Since 2003 (when the GDC regulations changed) she has also worked in both private and general dental practice. In 1997, Christine took a locum position, working one day a week in the paediatric department at the Eastman Dental Hospital, until transferring to the School of Dental Hygiene and Dental Therapy in 1998, where she continued to work as a dental therapy tutor for 16 years. She completed her PGCE in post compulsory education in 2003. A Postgraduate Diploma in Hypnosis applied to Dentistry followed in 2006 and since then she has studied acupuncture, NLP, CBT and has also undertaken training in Relative Analgesia. Christine enjoys lecturing and has been invited to speak all over the country, and now runs her own training company ChristineMacleavyCoaching, delivering CPD courses to DCPs. She also supports the BSDHT and BADT's 'Subscribe to Prescribe' campaign.*

Then we went around the room and it appeared that there was only one other dental therapist there; the rest were dentists. Wayne asked why we were there and what percentage of our IDBs failed or did not get the patient numb enough. The consensus was about 30-40%. Wayne asked me and I said: 'Well in the couple of years I've been doing them, I've only had one not work.' He asked me how many I did per week - I said it varied but I gave local a lot and IDBs pretty much daily, in addition to supervising students every Thursday at the Eastman School of Dental Hygiene and Dental Therapy. Interestingly the other dental therapist has since attended one of my refresher courses.

Since those early days of IDBs to date I have been picking up tips and learning from others, especially Dr Mike Gow who taught on the PG Diploma in Hypnosis Applied to Dentistry at UCL, and Dr Chris Bell from Bristol Dental Hospital.

My top tips

So, based on 39 years of clinical experience in administering infiltrations, and interpapilliaries, 15 years of administering IDBs as well as 16 years supervising students at the Eastman Dental School and delivering refresher courses, I have come up with my top tips for giving a painless, successful injection, whether an infiltration or an IDB.

1 Prepare your patient

Preparation is vital. Has the patient had their tooth numbed up/been put to sleep before? Either way some explanation is necessary, either simply to inform the patient or to allay fears and dispel myths. Make sure you are using language that is appropriate to the age and understanding of the patient. Explain what you are going to do, what it will feel like ie 'fat and funny' and how long it will last for, what areas will be affected etc.

2 Check medical history/ medication/recreational drug use

Yes every time, boring I know but extremely important. Unfortunately we are more reticent to ask about recreational drugs, yet it is extremely import to ascertain - for example someone using cocaine will be more prone to arrhythmias.

Choose your local anaesthesia - lidocaine is still the gold standard. It is suitable for anyone over the age of two years (weight dependent). The toxic dose of lidocaine is 4.4 mg per kg of body weight which for a small child of approximately three years of age weighing 3 stone or 20 kg is two cartridges and for an 11 stone or 70 kg adult that's about 11 cartridges.

3 Apply topical

For IDB – apply topical on the end of a cotton wool roll and get the patient to bite on it, thereby holding it between the teeth – and wait. Lidocaine topical takes 2-4 minutes to work. Benzocaine is contraindicated for children under four years of age, nursing mothers and as an ester is far more likely to cause an allergic reaction. For infiltration, again apply topical, this time on the side of the cotton wool roll and place it into the sulcus. Wait 2-4 minutes again.

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4 For IDB - Look and identify external landmarks - pterygo mandibular raphe, buccal pad of fat, retro mandibular triangle and feel with your thumb for the coronoid notch

Remove the cotton wool roll and any excess topical.

Ask the patient to open as wide as they can - the wider they open the more comfortable they will be. Get good retraction and pressure with the thumb of the non-injecting hand, push firmly with the thumb and support the jaw with the rest of your fingers.

Sometimes it is a good idea to do a little rehearsal with the cap on the syringe prior to actually injecting - it helps to prepare the patient and gauge their reaction.

5 The injection

At the point of penetration - get the patient to open their eyes (distraction). Instead of having their eyes closed for the injection which results in the patient being internally focused, suddenly their senses are swamped with light, shade and colour.

For infiltration, inject slowly, very slowly, and use the gate control technique (slowly waggling the lip to make the injection less painful - it does work). Your aim is for the bevel of the needle to be close to the apex of the tooth you are anaesthetising or for upper teeth with two or more roots, aim in between the apices.

For IDB - advance a wide bore, long needle to 3/4 of its length - it is not necessary to hit bone (this actually damages the bevel of the needle).

Deposit 3/4 of the solution, withdraw to half the length of the needle and deposit the final quarter to anaesthetise the lingual nerve and lingual mucosa.

Push firmly with the thumb of the non-injecting hand to prevent drag and a 'ping' of the tissues as the needle is removed.

Massage with the thumb (I don't know why, maybe it is psychological - the pushing sensation the patient feels is then related to your thumb and not the injection).

Wait 2-3 minutes for infiltration and a good five minutes for IDB - use this time to chat to the patient, give oral health information, explain the length of analgesia etc.

If the lower lip is tingling following an IDB it is a good sign. If not I personally would wait up to ten minutes before giving another block. If I do, it is a back to basics moment; re-establish my landmarks, make sure my retracting thumb is in the right place. I often use my retracting thumb as a landmark - then by bisecting my thumb, I can ensure that I am in the right place. I often tell students that if they are sure of their landmarks and hit bone when the needle is barely in the tissues, they have only two options: to come out and try again or use the indirect approach.

6 Which local?

For IDBs this is crucial. According to the statistics Articaine is more toxic to the nerve tissue and the risk of paraesthesia higher (about the same as Citanest). Some clinicians suggest using Articaine infiltration for lower teeth rather than a block. I have never achieved sufficient analgesia to restore a lower molar on an adult with this method to be honest and my preference is to go for a block with lidocaine

every time. Chris Bell implied that Articaine was used by those clinicians not confident with their ID block technique ... one for discussion.

7 The dental nurse

I hope that everyone has the support of a dental nurse, especially when administering analgesia. A dental nurse is a second pair of eyes, observing and monitoring the patient in case of an adverse reaction. The presence of a dental nurse is reassuring to the patient. You may want the nurse to hold the patient's hand for example. I prefer them not to, as it suggests something unpleasant is about to happen - putting a suggestion into the patient's head immediately. I prefer the dental nurse to be 'ready', especially with children and adults with special needs whose behaviour can be unpredictable. I like my dental nurse to pass me the syringe, simultaneously removing the cap, whilst I am retracting tissues thereby ensuring a slick procedure as I don't have to remove my non-injecting hand, and can maintain a firm 'grip' on the patient (necessary for safety, and instilling confidence in the patient). Every clinician should resheath their own needle (dependent on the system used - I prefer the Ultra Safe System by Septodont which locks and is impossible to accidentally needlestick yourself).

'I LIKE MY DENTAL NURSE TO PASS ME THE SYRINGE, SIMULTANEOUSLY REMOVING THE CAP, WHILST I AM RETRACTING TISSUES...'

Case study

One exception I've adopted along the way was a two injection - short needle and long needle approach.

I had a patient with Reflex Anoxic Seizure [a term used for a fit which results from a brief stoppage of the heart through excessive activity of the vagus nerve]. She was referred to the CDS as whenever she experienced pain she collapsed- and her heart stopped for approximately three minutes before restarting! She was also terrified of dentistry. My clinical director gave her to me and suggested some hypnosis in the first instance. She was 16-years-old and was happy to try, and after a few sessions of hypnosis which included ego strengthening and desensitisation, we reached the point where she was ready to have her filling done, a lower first molar.

I had also used Mike Gow's 'Six Step Needle Desensitisation' that I learnt on my PGDip in Hypnosis. Around this time Chris Bell from Bristol Dental Hospital had come up to Northamptonshire to spend a day updating CDS staff on anaesthesia and sedation. It was he who shared this technique that I used on my patient that day.

Firstly apply topical and then with a short needle and mepivacaine plain, inject half a cartridge (as if you were giving a block but only to half the depth of the needle).

Then leave it to work for a good five minutes. Then with a long needle and lidocaine give an IDB as normal. The mepivacaine has successfully numbed the whole area that the long needle will travel through. The mepivacaine plain is a closer pH to the tissues and therefore does not sting as much.

It worked like a dream and my patient had her filling done with absolutely no pain - not during the filling and certainly not during the injections.

I was convinced and have used this approach for several really anxious patients. One of the problems treating anxious patients is that they have a high expectation of pain and therefore become hypersensitive which of course results in them feeling tense instead of relaxed. It becomes a vicious cycle and a self-fulfilling prophecy.

Christine will be holding the following courses in April:
21 April, Local Anaesthetic Refresher, Sunbury on Thames
28 April, Stress Management, Inverness

For more information visit http://www.cmcdentalcpd.co.uk.

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Did you see Christine's article in Vital *in 2013? Are dental nurses fulfilled and appreciated? Christine Macleavy looks at dental nursing as a career and the role of extended duties. https://www.nature.com/vital/journal/v10/n4/full/vital1723.html*

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