Needle phobia: a psychological perspective

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Needle phobia is probably seen as a simple issue in its purest form. Your patient does not like needles—who does? Use a good topical numbing agent and let’s get on with it. Job done. . . Or is it?

When I first started out as a clinical psychologist in a district general hospital, I have to admit that the anaesthetists were not a group I saw myself having a lot to do with. Since then, I have learned that my colleagues in the anaesthetics department encounter some of the most difficult situations, the sharpest edges of human distress. Far from being people who only deal with sedated patients, anaesthetists end up dealing with some of the most extraordinary situations with complex psychological trauma involved. I now work regularly with the team in a variety of settings and have an enormous amount of respect for their psychological management skills.

I was heartened to see in the November 2013 Bulletin of the Royal College of Anaesthetists, an article on anaesthesia of the anxious and agitated child.1 As I hope to discuss below, early experiences in the anaesthetic room can have an enormous impact on a person’s future engagement with the healthcare system. Regardless of the problem that child is being sedated for here and now and the problems with pain, recovery, and behaviour postoperatively, described by Marshall and Courtman, the patient’s experience could make the difference in whether they seek medical help in the future or not, even to the extent of refusing life-saving interventions further down the line. Good management of needle phobia can literally save lives.

The very nature of needle phobia makes it very hard to determine incidence. By definition, people who suffer from needle phobia will avoid healthcare settings and so any population estimate is likely to underestimate the true number, but estimates range from 3.5 to 10%.2 3

The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)4 classes needle phobia as part of a group of specific phobias of blood-injection-injury (B-I-I) type. This group is classified as a discrete subtype of phobia owing to the very high familial links, and the often extreme vasovagal response to the stimuli. Up to 80% of people with needle phobia report a first-degree relative with a strong phobic response. In most specific phobias, exposure to the feared object (e.g. dogs, heights) causes arterial pressure (AP) and heart rate to increase, as the body gets ready for action. The B-I-I subgroup differs in that 75% of sufferers will experience an initial increase in heart rate and AP, followed by an often almost immediate decrease, leading to fainting.3 Sadly, in turn, the fear of fainting itself can then lead to the development of a more standard phobic response. Needles produce fainting; fainting is anxiety provoking; and anxiety produces feelings of being light-headed, sweaty, and blurred vision, which mimic the symptoms of fainting. The patient therefore gets into a vicious circle of avoiding the situation as the symptoms of anxiety convince them they are going to faint even before the procedure has begun. In an evolutionary sense, it would appear to make sense to decrease AP and heart
rate when the subject has sustained a puncture injury, allowing for clotting to occur before the injured party bleeds out completely. However, despite the apparent evolutionary benefit, the process is very unpleasant for the patient and so avoidance is understandable. Needle phobia of this kind has even been attributed to cause of death in 23 documented cases. In these cases the vasovagal response has been so severe and occasionally paired with artherosclerosis, as to cause myocardial or cerebral infarction. Even without such extreme consequences, AP can take more than 2 h to return to normal and the vasovagal response can last for up to 2 days, causing feelings of weakness and fatigue and further reinforcing a desire for the patient to avoid the stimulus.

The second group of needle phobics is the 25% for whom fainting has never been part of the pattern. It is possible that this is a phobia that develops through a completely different mechanism, as these people do not have the vasovagal response to the stimulus. However, it has been suggested that this group simply do not have the genetics that have evolved to include the lower threshold for vasovagal responses. Tilt table testing has shown that needle phobics who faint are more likely to have a predisposition to vasovagal syncpe in general.

Needle phobia without the vasovagal response has often arisen from a situation where classical conditioning has occurred. This puts it more in the realms of a specific phobia that is not B-I-I type. For instance, a patient who recalls being held down as a child while receiving vaccinations, or undergoing anaesthetic, will have learned a paired association of ‘needles plus doctors equals pain and distress’. Therefore, being back in that situation produces distress, to the extent that sufferers will simply avoid the situation.

Whether caused by vasovagal reactions or a conditioned response, in its most extreme forms, I have worked with many patients who were refusing life-saving treatment, as the anxiety of a cannula or blood test was too much. For instance, a 24-yr-old man with Hodgkin’s lymphoma was so distressed by the idea of cannulation that he refused to undergo chemotherapy. His wife was 4 months pregnant with their first child at the time and even this was not enough incentive for him to face his anxiety. Luckily, he agreed to engage in treatment for his phobia, which was not of the vasovagal type, and was able to complete chemotherapy successfully. Only recently in my clinic I assessed a young woman who was 35 weeks pregnant, and was so vasovagal needle phobic that she had refused blood tests up to this point, putting herself and the baby at significant risk of harm. Her fear of fainting (which was a very real possibility) was so acute that she could not bear the sensations associated with it. The subsequent guilt and shame she was experiencing had become so severe that she was ready to face the fear and engage in treatment. She was able to have her blood collected and typed 3 weeks later, just in time for the birth of her baby. A final example is that of a woman who finally presented to the breast team with a tumour that, once excised, weighed 9 lb. Her avoidance of the medical profession was such that she had lived with a tumour growing to that size before she presented. On exploration, it appeared that she was terrified of medical interventions because her needle phobia was so extreme.

Usually, when psychologists are faced with a patient with a phobia, we undertake a course of treatment using cognitive-behaviour therapy (CBT), including a systematic desensitization programme. This would involve giving the patient anxiety management strategies, such as breathing exercises and relaxation, to lower AP and alleviate the physical symptoms of anxiety that may be being misinterpreted as ‘I’m going to faint’ or ‘I’m having a heart attack’. Once the patient feels proficient in managing the symptoms, we can then start to expose them to the feared stimulus, starting off slowly. For instance, a man was referred to my clinic for claustrophobia which was so extreme that he was refusing to have radiotherapy for his cancer of the tonsil, as the idea of the restricting fitted facemask was too abhorrent. In a situation such as this, the first steps on our systematic desensitization may be to ask the patient to sit in a small office with us. We would then access the thoughts that were going through the patient’s mind, the cognitions, and work on challenging those as they come up. ‘I’m going to suffocate’, for instance, could be challenged by asking the patient to do their breathing exercise and show themselves that their feared consequence does not occur. Up until this point, it is likely that the patient has simply avoided the situations that make them feel that anxiety and therefore have never provided themselves the opportunity to challenge the belief. Over time, you then set harder and harder challenges, as the patient becomes more confident that they can manage the symptoms. It is unlikely in this case that the patient will ever feel entirely comfortable in very confined spaces, but the aim of the intervention was simply for him to be able to tolerate the facemask for 6 weeks of treatment, which he was able to do after eight sessions of CBT.

This type of intervention would work well with someone whose needle phobia is attributable to a conditioned or learned response, without a vasovagal consequence. In these cases, the therapy may start with simply looking at pictures of needles and syringes, working up to injecting oranges, and in one patient I treated, sitting in on flu jab clinics. The picture rather changes when you are faced with a vasovagal needle phobic. Obviously, interventions designed to lower AP when managing anxiety do not apply in this case. The last thing you want to do is to make it more likely that the patient will faint, as this is probably the consequence they fear the most. Instead, strategies to help the autonomic nervous system maintain AP are used. One such strategy would be applied tension, where the patient is taught to tense the muscles in their arms, legs, and thorax; hold for ~15 s; and then release some of the tension for ~30 s, without allowing the muscle to completely relax. Patients would be asked to complete five cycles at a time, and practice the technique at least five times a day. Once the patient feels they have more control over their physical symptoms and can prevent themselves fainting, the intervention can proceed after the normal phobia treatment plan, using the systematic desensitization and cognitive challenging techniques. Studies have even shown applied tension alone to be effective, after just five sessions of 1 h. This can certainly provide
the patient with the control over their fainting that they require. However, if time allows, a full CBT programme gives the patient the skills to see how avoidance can perpetuate a problem and helps them to develop mastery over their cognitions and their physiology.

Sadly, clinical psychology departments in general hospitals are rare. However, community psychology services are becoming more widespread and early identification of a needle phobic patient ought to be seen as an opportunity to get them treatment for their phobia before hospital treatment, as opposed to simply managing the phobia through the use of topical anaesthetic or sedation. In fact, the use of sedation in order to allow cannulation could actually be detrimental. It removes any sense of control from the patient and denies them the opportunity to learn self-management, test cognitions, and show themselves that their feared consequences do not occur once they have the skills to control their symptoms. Even relatively short time periods can produce good results with psychological therapy, and just a few weeks’ notice can provide the opportunity for significant improvement and empowerment of the patient. If this is not possible, then the strategies described by Marshall and Courtman in the November Bulletin of the Royal College of Anaesthetists would be effective with phobic adults and anxious children. Allowing visits to the environment, preferably with a length of stay that allows for reductions in anxiety levels and distraction, combined with desensitization to the equipment and an enhanced sense of knowledge and control will all benefit the patient, be they adult or child. Given the strong familial links in needle phobia, obviously the ‘nature/nurture’ debate is relevant, and if possible the presence of a non-phobic parent would benefit a child in these circumstances. Visible parental anxiety can significantly increase children’s distress in the presence of needles, whereas an adult using humour or non-procedural talk can help children cope. Given the long-term consequences of conditioned needle phobia, all healthcare professionals have a role to play in ensuring the best possible conditions, and preventing that anxious child becoming a needle phobic adult who may refuse life-saving treatment in the future.

Declaration of interest

None declared.

References


Animal behaviour testing: memory

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Animals are often used in biomedical research for testing novel treatments, investigating currently used drugs or mechanistic studies while, with the Replacement, Refinement, and Reduction of animals in research in mind, the number of animals being used is declining. In order to obtain clinically relevant outcomes, it is sometimes necessary to investigate the histological, physiological, and behavioural outcomes of any tested interventions in animals. When using behavioural tests in animals, learning and memory are the most commonly used subjective endpoints as there are a wide range of paradigms available which examine a variety of brain regions. It is well established that the hippocampus is one of the most important brain structures involved in learning in both humans and animals, and lesions in this area cause impairment in