

Jaideep J Pandit

Professor, MA, BM, DPhil, FRCA, FFPMRCA, DM

Consultant Anesthetist, Nuffield Department of Anesthetics, Oxford University Hospitals

Fellow, St John's College, Oxford

Website: <https://www.sjc.ox.ac.uk/discover/people/professor-jaideep-pandit/>

**BIOGRAPHY AND AREAS OF RESEARCH:**

Professor Pandit is Consultant Anesthetist at the Oxford University Hospitals. He trained in Medicine at Oxford (Corpus Christi College) where he obtained a First in Physiology, and university prizes in Medicine, Cardiology and Clinical Pharmacology. After a Wellcome Trust Research Fellowship to support a DPhil in Respiratory Physiology, he undertook his anesthetic training in the Oxford region. He was Assistant Professor of Anesthesiology at the University of Michigan, Ann Arbor, USA (1998-9), appointed to his NHS Consultant post at the John Radcliffe in 1999 and elected to St John's 2000.

As Fellow of St John's College, he teaches Systems Physiology and Pharmacology. His research interests include: respiratory physiology, anesthesia and critical care, health economics and operating room management and mechanisms of an aesthetic drug action.

Michael Wang

TOPIC: Awake paralysis – the heart of AAGA PTSD

**BIOGRAPHY AND AREAS OF RESEARCH:**

Michael Wang is Emeritus Professor of Clinical Psychology in the

College of Medicine, Biological Science and Psychology,

University of Leicester UK, and Honorary Consultant Clinical

Psychologist in Anesthesia, Critical Care and Pain Management

at Leicester Royal Infirmary UK. He is a former Chair of the

Division of Clinical Psychology of the British Psychological

Society. He has worked as a clinical psychologist for more than

35 years, treating patients with PTSD, anxiety disorders, depression, obsessional compulsive disorder, and in particular, psychological problems arising from unplanned anesthetic and surgical incidents.

Michael Wang (MW): 0:13 Okay.

Jaideep Pandit (JP): 0:14 Great, so I'm Jaideep Pandit, consultant, anesthetist, and Professor at Saint John's College Oxford and the department of anesthetics.

MW: 0:26 Great, okay. I'm going to start by asking you about NaP 5. Actually, I've previously done a piece to camera explaining what NaP 5 is. So, I'm not going to do that again, am I Anthony?

AM: 0:40 No. That's the beauty of editing.

MW: 0:43 Yeah, yeah.

AM: 0:44 Sorry.

MW: 0:45 Yeah.

MW: 0:46 Okay, so the first question is...

JP: 0:48 Yeah.

MW: 0:50 What does NaP 5 tell us about the incidence of accidental awareness under general anesthesia?

JP: 0:57 Well, as we...as you know, we've stressed all along with Nap 5, it's the methodology stresses it. It's...it's very much about reported awareness, it's what patients were reporting. So, the incidence, the overarching incidence that was created, the number of cases retrieved was all based on patient reports. We were satisfied that we were robust in the capture of those reports over that calendar year. I think with the methodology, the way the system worked. I think the number sort of missed and reporting to places that were not captured...I think were few and far between, but nevertheless it was reports. But then within that if we're talking about incidences, even that methodology was robust enough to dissect out the different incidences particularly relating to the use of neuromuscular blockade. So, even within a low incidence overall reported, we still were able to have that resolution, power, to dissect out different incidences within the overall incidence.

MW: 2:11 Sure

JP: 2:12 And I think that was most marked by the cesarean section rate of one in 670...

MW: 2:17 Yeah.

JP: 2:18 to no paralysis rate of one in 136,000.

MW: 2:24 Sure...sure. But I'm reflecting on some of the discussions in a NaP 5 panel, and actually, comments are heard from anesthetists who have no connection with...direct connection with Nap 5. To the effect that the incidence of reporting, seems to cast out or puts a question mark on the previous Brice type study incidence.

JP: 3:00 I think...I mean clearly that was a danger of that you know layer of interpretation, or misinterpretation. And we did our best in the launch, in production you could say of the report to avoid or prevent that. What it should've done is clearly stimulated further research of a very large scale, studies doing the alternative method which is a very large-scale Brice methodology, and in fact it is a recommended...well there are two recommendations within the report. You know, one is to keep an ongoing registry...

MW: 3: 38 Sure.

JP: 3:39 of patients, however they are captured...

MW: 3:43 Yup.

JP: 3: 44 and I think, an ideal situation would be: that yes you take the spontaneous report, put the patients into a registry, but then you have an ongoing Brice activity...

MW: 3: 57 Yeah.

JP: 3: 58 that captures more, and put them into a registry too.

MW: 3:59 Sure, sure.

JP: 4:00 And then within your registry, it's sort of like the U.S. registry, which is entirely passive and voluntary, but a more active registry.

MW: 4: 07 Mm-hmm.

JP: 4:08 But then within it has two cohorts: you have a spontaneous cohort and a Brice cohort, and actually you can translate it in time, and that's embedded in the report as a...

MW: 4:17 Sure.

JP: 4:18 recommendation.

MW: 4:19 Yeah.

JP: 4:20 It's unfortunate that the college's sort of moved to other things.

MW: 4:24 Yeah.

JP: 4:25 (It's sort of interested in other things;) it's unfortunate that the college has moved on to other things. And that is an unfortunate

MW: 4:26 Sure, sure.

JP: 4:27 But, I think if we plug away...

MW: 4:29 Yeah.

JP: 4: 30 We should get a...

MW: 4:30 Sure, sure, sure.

JP: 4:31 back on the agenda.

MW: 4:33 I don't want to misinterpret or misjudge him, because he's not here to answer himself, but my recollection is, that Professor Tim Cook thought that the data cast out on the Brice methodology. And there are some significant questions to ask, such as around, does repeated Brice questioning cause

JP: 4:55 Yeah.

MW: priming, for example.

JP: 4:56 I think...I think I wouldn't go so far as to say it cast out, and again I don't know if he...if that's his interview or not, but I think it did bring into focus that the Brice methodology does itself need further validation.

MW: 5:09 Sure.

JP: 5:10 I think it's true to say it's been accepted somewhat blindly. It hasn't been critically examined, it might be...it might be room for improvement with Brice.

MW: 5:21 Sure

JP: 5:22 So, I think there is a concern that we don't fully know what Brice is eliciting, and whether it's the right way of eliciting whatever it's eliciting.

MW: 5:32 Sure.

JP: 5:33 So, I think the easiest way to put it is...the simplest way to put it is, that Brice is one extreme, and you know NaP 5 is probably the other extreme, and somewhere in between is where the problem is. It's such a vast gulf.

MW: 5:46 Well, indeed. Yeah, and if my memory serves me correctly, with talking about on average about one in 19,000 with NaP 5, and one in approximately 600 for Brice.

JP: 5:56 That's it, yeah.

MW: 5:58 So, that's the gulf that you've got

JP: 6:00 I mean one way that we are looking at the gulf is, there's the Dreamy Study ?,[1] and I'm one of the PI's [Principal Investigator ] for that. And again, that was taking forward a recommendation within NaP 5. Focusing on necessary section group of one in 670, one in 600 which is very close to the Bryce.

MW: 6:20 Yeah.

JP: 6:21 So, the question we're asking is, if we look to place cesarean section women, general anesthesia cesarean section, and we administer them a Bryce. Do we still get the one in 600 consistent with everyone else, or is that relative...are the relative proportions maintained? So, we actually get two to one in 20...

MW: 6:42 Yeah.

JP: 6:43 with the Brice, and one in 600 with spontaneous.

MW: 6:46 Sure.

JP: 6:47 That would be particularly interesting, because that would also tease out some issues around Bryce.

MW: 6:53 Sure.

JP: 6:54 You know you can imagine which way it falls if it's one in 600, and if it's one in 600 then why is it...

MW: 7:00 Yeah.

JP: 7:01 You know equivalent in the cesarean section, but not in others etcetera, etcetera.

MW: 7:04 Yes.

JP: 7:05 So, let's...let's wait and see on that one.

MW: 7:08 Just to be clear, for the sake of the audience, as the lead investigator for the NaP 5 project, you would be unhappy if the average anesthetist interpreted the data as indicating that the actual incidence of accidental awareness under anesthesia was nearer one in 19,000?

JP: 7:38 Well, let me clarify, actually and I've been consistent in this. The number, the numerical incidence doesn't matter...at all, whether it's one in 19,000, one in 600, whatever. Because both of those numbers are uncommon. What I would say, I'd be unhappy if the average anesthetist, practicing anesthetist, interpreted one in 19,000 or one in 600 as indicating a trivial problem.

MW: 8:07 Yeah

JP: 8:08 I think that's...

MW: 8:09 That is the problem

JP: 8:11 So, regardless of incident, numerical incident, it's important not to use that incident to trivialize the problem...

MW: 8:18 Sure.

JP: 8:19 whatever that incident is.

MW: 8:20 Sure, sure.

JP: 8:21 And that's the point that I would make.

MW: 8:23 But I think the reason why the numbers are important, is that the average anesthetist might not quite get to one in 19...might not get to 19,000 general anesthetics, but they certainly will get to one into 600.

JP: 8:38 Yeah, but the way I...again, to disregard it, to underplay this numerical...you can say obsession and the media had it, and your questioning on it etcetera. To get away from that, the incidence one in 19,000, that sort of ball park is the same as other very significant things

MW: 8:59 Sure.

JP: 9:00 that happen in anesthesia, like never events...

MW: 9:02 Yeah, yeah, yeah.

JP: 9:03 which are not trivial. So, I think the message is, that even if it's...even if the "true" whatever that means, is discovered to be one in 19,000.

MW: 9:13 Yeah.

JP: 9:13 I'd be sitting here and saying fine, but that's still not a trivial problem, because it's the same as in ever events etcetera, etcetera.

MW: 9:19 Fine, okay. I want to move on now...

JP: 9:24 Yeah.

MW: 9:25 to the isolated forearm technique...

JP: 9:26 Oh yes.

MW: 9:26 technique, and other issues.

JP: 9:27 Yeah.

MW: 9:30 So, what evidence do you have that spontaneous movements don't occur with the isolated forearm technique?

JP: 9:40 Well, the only evidence I have is what's been published.

MW: 9:45 Mm-hmm

JP: 9:46 So... people aren't publishing as they're focus on that aspect, they're focusing on other aspects.

MW: 9:56 Hmm.

JP: 9:57 I mean perhaps in this state it may be useful to summarize what my view of the isolation forearm actually...

MW: 10:03 Sure

JP: 10:04 actually is, to put some context to the discussion. So, what I believe in, and that belief is formed through the analysis of the literature and personal experiences, but...but, obviously personal experiences being minimal as you previously indicated. We experience little, but looking at the picture overall...there are dose dependent effects on the brain with anesthetic drugs that lead us from a state of being fully awake, to being deeply unconscious and unresponsive. And between those, you know, our states as yet ill-defined...

MW: 10:45 Sure.

JP: 10:47 that occur in a dose-dependent way, and what I think the isolated forearm technique is, is a unique way of dissecting out what those states could be, because it's...and you said words similar to this, it's the only way that we have that accessing behavior.

MW: 11:06 Hmm.

JP: 11:07 In an otherwise paralyzed patient, in that trajectory. And what I think is that, there are several isolated forearm responses that are possible. So, for example, when you yourself underwent it, you were fully awake, and you exhibited the full range of behaviors, and movements. That you are sitting here in the chair today.

MW: 11:32 Sure.

JP: 11:33 And that's one level, and you can imagine patients even with very small doses of anesthetic being at that sort of level, with that full range of responses. So, when I say that don't occur, well of course they can occur if they get if they don't get very much...

MW: 11:45 Yeah.

JP: 11:46 anesthetics. And then the other extreme, are patients who are simply unresponsive in isolation. They're not all responsive, that's because they're all the way down here. The point about the in between states, and this is what I'm focusing on is, that there is demonstrably this group of patients that is reported with no spontaneous sort of alerting movements as I call it, but they retained the capacity to respond to direct command. Some of them have even retained the capacity to respond to conditional choice questioning, not all. And so, we do see that gradation...

MW: 12:25 Yeah.

JP: 12:26 between the types of responses. Now, our interpretation of that is up to us as it were. We can either

MW: 12:34 Yeah.

JP: 12:35 say well, it's all the same...

MW: 12:36 Sure.

JP: 12:37 and they're all awake in...

MW: 12:38 Yeah, yeah.

JP: 12:39 a binary sort of approach. They're all awake or they're all asleep.

MW: 12:41 Yeah.

JP: 12:42 Or we can say well hang on a moment, this pattern of responses, this behavior is different from Michael Wang...

MW: 12:49 Mm-hmm.

JP: 12:50 Who had nothing...

MW: 12:50 Mm-hmm

JP: 12:51 and it's clearly different from those who are not responding at all, it's unique...

MW: 12:54 Yeah.

JP: 12:55 and it warrants...

MW: 12:55 Yeah, yeah.

JP: 12:56 a separate...

MW: 12:57 Yeah.

JP: 12:57 interpretation...

MW: 12:58 Sure.

JP: 12:59 and that's fundamentally where this idea of dysanesthesia came from

MW: 13:01 Yeah, sure.

JP: 13:02 So, it's not saying that everyone in IFT is in one category or another.

MW: 13:05 Yeah.

JP: 13:06 It's to say a...there is a dissected-out subcategory.

MW: 13:09 Yeah, and...I think we both agree that actually there's not a lot of difference between our positions.

JP: 13:17 Yeah.

MW: 13:18 My difficulties...

JP: 13:18 Yeah, yeah.

MW: 13:19 with a single...

JP: 13:20 Yeah

MW: 13:20 title of dys-anesthesia...

JP: 13:21 Yeah.

MW: 13:22 for what I consider to be a range of states...

JP: 13:24 it...

MW: 13:25 Yeah, and indeed, many years ago I put forward a classification at one of the MAA meetings...

JP: 13:33 Indeed, indeed.

MW: 13:34 from about one to five.

JP: 13:35 Indeed.

MW: 13:36 in terms of the type of response you get from the isolated forearm.

JP: 13:39 Yes.

MW: 13:40 forearm.

JP: 13:41 That's right.

MW: 13:42 So, the very minimum for me there are probably four...

JP: 13:45 Four or five.

MW: 13:46 different subtypes of response.

JP: 13:49 And that's sort of consistent, if you recall the article that we published by way of the debate

MW: 13:55 Yeah.



JP: 13:56 coming out to the last MAA meeting. I drew you this color diagram going from sort of red being...

MW: 14:01 Sure.

JP: 14:02 awake to blue being deeply anesthetized. With dys-anesthesia spanning a range of colors in the sort of...

MW: (unsure what he said)

JP: 14:09 zone in between. So, it wasn't fixed the one color or one shade.

MW: 14:13 Sure.

JP: 14:14 There is that clear...

MW: 14:15 Yeah, yeah.

JP: 14:16 gradation.

MW: 14:17 Indeed.

JP: 14:17 And it's clearly, as you know...as we learn more about that period in between. It's clearly a dynamic state.

MW: 14:23 Sure.

JP: 14:24 You know...

MW: 14:25 Yeah, yeah.

JP: 14:26 it's dose dependent. It's at that very, sort of subtle...

MW: 14:30 Yeah.

JP: 14:31 you know range in between two...

MW: 14:33 Yeah.

JP: 14:34 stable states, you can say.

MW: 14:35 Indeed, indeed.

JP: 14:36 It's going to span a lot of...

MW: 14:37 Yeah, yeah.

JP: 14:38 responses.

MW: 14:39 I'm just reflecting on something that you have said...

JP: 14:43 Hmm.

MW: 14:45in the NaP 5 reporting indeed

JP: Hmm.

MW: 14:47 That actually in the past, anesthetists have focused on the issue of preventing pain as a primary target of...

JP: 14:56 Yeah.

MW: 14:57 general anesthesia, but NaP 5 seems to be suggesting that maybe it's not that at all. But the primary target is the avoidance of awake paralysis.

JP: 15:05 Yes, yes.

MW: 15:06 And I think that's a point that's very well taken, because obviously in my clinical practice...

JP: Hmm.

MW: 15:13 I'm seeing patients who have been traumatized...

JP: Hmm.

MW: 15:16 largely because of the effects of paralysis

JP: Hmm.

MW: 15:18 rather than pain.

JP: Mm-hmm.

MW: 15:20 We had a very interesting conversation last night...

JP: Hmm.

MW: 15:24 around the issue of...concerning of what is the ideal end point for a general anesthetic...

JP: Hmm.

MW: 15:34 If you're wanting to avoid psychological disturbance following general anesthesia, and I was talking about the point at which a patient is able to make catastrophic...

JP: Hmm.

MW: 15:55 attributions to the...

JP: 15:57 Yeah.

MW: 15:58 predicament they think they are in.

JP: 16:00 Yes.

MW: 16:00 Because it's that process...

JP: 16:02 Yes.

MW: 16:02 which actually causes psychological trauma. So, we would...

JP: Hmm, hmm, hmm.

MW: 16:07 thinking about whether one could correlate...

JP: Hmm, hmm.

MW: 16:11 perhaps the point which one loses the capacity to develop constrictions of external stimuli, with predicament...

JP: 16:21 Yeah.

MW: 16:22 the patient is in.

JP: 16:22 Yeah.

MW: 16:23 Whether that could be correlated with maybe one of those four, or five, stages of isolated forearm response.

JP: 16:29 I thought yeah...I thought that was a very interesting conversation, and...

MW: Hmm.

JP: 16:32 reflecting on that, I think I that's close to what I think the situation probably is, in that...

MW: 16:37 Yeah.

JP: 16:38 we have the awake condition, where we are rationalizing, explaining, and

MW: 16:42 Yeah.

JP: 16:43 using the word appraisal, hypothesizing, creating mental models

MW: 16:46 Sure.

JP: 16:47 show the world around us. And even in sedation, I think we're doing that...

MW: 16:50 Yes.

JP: 16:51 We're just accepting of the situation.

MW: 16:54 Sure.

JP: 16:55 We don't have that anxiety, but we're still able to make sense of the world around us...

MW: 17:00 Indeed.

JP: 17:01 and pain free in a non-anxious way. And the point about this other state which are loosely called dis-anesthesia.

MW: Hmm.

JP: 17:10 Is that state where yes, we have information that's coming in...

MW: Hmm.

JP: 17:14 So, we haven't given such a dose as to block sensory input.

MW: 17:18 Yeah.

JP: 17:18 But we're unable to...or we're unwilling, or undesirous of making sense of it.

MW: 17:24 Sure.

JP: 17:25 We're just...distanced from it, and now I'm concerned by it.

MW: 17:28 Yeah.

JP: 17:29 And therefore, we don't formulate these wild ideas...

MW: 17:32 Yeah, yeah.

JP: 17:32 because we're in our own world

MW: 17:35 Yeah, yeah.

JP: 17:35 as it were...

MW: 17:37 Of course,...

JP: 17:38 In it doing whatever we're doing.

MW: 17:39 The other approach to this of course is to provide training or...

JP: 17:44 Yeah.

MW: 17:45 substantial information. Some might say this is completely unrealistic, because really you want to train as an anesthetist...

JP: 17:53 Yes, yes.

MW: 17:54 to know exactly what's going on...

JP: 17:55 Sure.

MW: 17:57 So, that we moderate or we mold their expectations...

JP: 18:03 Yes.

MW: 18:04 about what they could experience in it, but given the fact that we're talking about fairly low probability instance.

JP: 18:14 Yeah.

MW: 18:15 Many of our colleagues would argue, why...

JP: 18:19 easier

MW: 18:20 Why upset...

JP: 18:22 Yeah, yeah.

MW: 18:23 many people for this, if this isn't going to be a problem?

JP: 18:24 Yes.

MW: 18:25 Why go to all this trouble of explaining the nature of general anesthesia?

JP: 18:30 Well, I think in a sense it is down to what...you know what we think the thing is. So, if you go to a patient and you say: "Look, you're not going to remember this period at all, you're going to have no experience, this is going to be blank." And if it isn't blank, then obviously there's a catastrophe, and there's catastrophic interpretations. But if you say to people, "look actually we know anesthesia is a state where for many it is...you know you will experience things, you just won't make sense of it." You'll see flashes of light, and you'll see the sounds, but don't worry that's part of the deal as it were.

MW: 19:05 Yeah.

JP: 19:06 And if they do experience it, that we'll find that they...that's what it is, and they're not in distress, or in pain, etcetera, and now that they've come to terms with it. And for those who don't, they don't mean to complain, oh I didn't see the flash of light, I didn't know how bad. So, I think it is an attitudinal thing.

MW: 19:24 Sure

JP: 19:25 Of course, coming back to this state you know in between dis-anesthesia, whatever where, people aren't appraising, aren't able to appraise things around them...the question is, what's the behavioral correlation of that? Could it be that some of these limited isolated forearm responses, where they're only responding to command or something, that actually signifies their inability to appraise properly. But retains at a sense of core response. You know, so that might need reassessing, if what you say is turns out to be true, which I think it might.

MW: 20:06 Yeah, yeah. You've actually said that the dis-anesthetic state might be an appropriate target or end point for general anesthesia.

JP: 20:18 Yeah, and again that was based on the results from the literature review that certainly with the more modern-day techniques, rather than those instances where IFT had been used to detect true awareness you could say, and where they were getting appropriate doses of anesthetics. But the patients were responsive, but did not have traumatic postoperative experiences, or indeed memory for the surgery. Some of them remembered the questioning, but they didn't actually remember the surgery. So, so...

MW: 20:49 The difficulty that causes, that just might be just an amnestic effect rather than something to do with...

JP: 20:54 It could a specific, specific amnestic effect.

MW: 20:56 Yeah, yeah.

JP: 20:57 But when they did remember, they did recall the command, but not the...surgery...so it was very specific to that

MW: 21:01 Yeah.

JP: 21:02 you know it was very specific to that. So...so, I went out on a limb and actually said...well in a sense, I was saying crudely what I think you are hopefully going to say in a much more...

MW: 21:11 Yeah.

JP: 21:12 In a much more sophisticated way, which is really it's acceptable so long as...or because you cannot create a mental model of...

MW: 21:24 Given where we are right now...

JP: Hmm.

MW: 21:28 if you needed to have a general anesthetic...

JP: Hmm.

MW: 21:32 would you be happy if your anesthetist said: "I'm going to aim for dys-anesthesia?"

JP: 21:37 [Laughing] I would be happy in a curiously...out of a sense of curiosity. I would be fascinated to have that experience, and sadly I haven't had it. I've tried it with dosing regimens and so on, but I haven't had it, but I would like to...

MW: 22:00 But you might've had it, but not...

JP: 22:02 I might've had it...

MW: 22:03 been amnesic.

JP: 22:04 I might've had it and been amnesic, but of course I haven't had muscle relaxant.

MW: 22:08 No.

JP: 22:09 So, I wonder if there is a story there that...yes, the muscle relaxant might be creating...

MW: 22:14 Let, let me...

JP: 22:15the catastrophe and so on, but also there are actually somehow encouraging that state.

MW: 22:21 Let me put the question to you in a different way.

JP: Hmm.

MW: 22:24 If your son needed...

JP: 22:26 [Laughing]

MW: 22:27 a general anesthetic, and you knew the anesthetist, and you happened to know that his target end point was dysanesthesia.

JP: 22:36 was dysanesthesia

MW: 22:35 would have it?

JP: 22:37 and could reproduce it

JP: 22:38 I think I would. I think I would say to my son look, this is the experience you will have, it's called dis-anesthesia, and it's fine, and that's what happens, and it's safer than the alternative. But...but I'll caveat that with a discussion that's been had at this conference, that the jury's still out on whether we say excessive doses of anesthesia without hypotension, and cardiac effects, and so on and so forth, by themselves are dangerous.

MW: 23:06 Yes.

JP: 23:06 If they're not then...I mean, in a sense where if you say, how can we eliminate the problem of awareness. Well, one is in fact deep anesthesia, so long as we can avoid the cardiorespiratory effect...

MW: 23:17 Yes.

JP: 23:19 and the other is avoidance of muscle relaxants.

MW: 23:22 Sure.

JP: 23:23 And then if you're allowed as it were, to give deep anesthesia without muscle relaxants, I think we'll crack the problem.

MW: 23:29 Sure.

JP: 23:30 I think there's...then we are in the realms, an extremely rare condition.

MW: 23:36 Yeah, okay.

MW: (Unsure of what was said)

Anthony Messina (AM): 23:38 One last thing. We were talking this morning lack of spontaneous response under the isolated forearm technique...

JP: 23:45 Yeah,

AM: 23:46 So, I was going through the abstract...

JP: Hmm.

AM: 23:49 So, there's an abstract at the meeting, which basically they fed into unpleasant sounds. Two volunteers took them deep with...

JP: 23:58 Yup.

AM: 23:59 Propofol etcetera. Aroused them and indeed they were unhappy with the unpleasant sounds, but they didn't spontaneously signal.

JP: 24:06 Right.

AM: 24:07 So, that's a very mild version of being unhappy under anesthesia.

JP: 24:09 Right.

AM: 24:10 And so, I guess the point you're making in terms of, where we may disagree as to whether 46 studies

JP: Hmm.

AM: 24:16 is a large cohort.

JP: Hmm, hmm.

AM: 24:19 I don't think it's large...

JP: Hmm.

AM: 24:20 relative to the power needed...

JP: 24:21 Yeah.`

AM: 24:22 to assess this and it's unclear. But let's say whatever, the lack of spontaneous response in that cohort may simply be because no one was significantly unhappy...

JP: 24:34 Yeah, yeah.

AM: 24:34 under anesthesia.

JP: 24:35 or sufficiently deep, or whatever.

AM: 24:37 Right, where if someone had the experience that I had as a kid...

JP: 24:40 Yeah.

AM: 24:41 they'd be going like this...

JP: 24:42 Yeah.

AM: 24:43 they'd be waiving.

JP: 24:44 Yeah.

AM: 24:45 And that's all, so all I'm...yeah.

JP: 24:48 I mean...I mean to come back to the other person, I think...I don't think it's the same one as the peter Schuler study, and he may have talked about it in his video recording about the psychological response of the volunteers, or anesthetists undergoing paralysis with IFT's. What's really interesting is that those...even in those patients, the anxiety, the distress occurred when they tried to move...

MW: 25:15 Yeah.

JP: 25:16 their non-paralyzed parts of the body. So, even though...it's the moving the arm was fine, if they focussed on the unparalyzed part of the arm they were fine, but when they moved...trying to move the other parts of the body...

MW: 25:27 Yeah.

JP: 25:28 then there was the anxiety, and I think...

MW: 25:30 Interestingly, I didn't get that.

JP: 25:32 You...did you, and you tried to move the unparalyzed arm?

MW: 25:35 Yeah, yeah.

JP: 25:35 that is interesting...

MW: 25:36 (Unsure of what was said)

JP: 25:36 they didn't all get it he said.



MW: 25:38 Yeah, yeah.

JP: 25:39 It was an individual thing. But it does occur to me, I think this influence of neuromuscular control and its effect on the mind is quite important, ...

MW: 25:49 Yeah.

JP: 25:50 and it's probably given to being largely overlooked, as to what does it do to us if we cannot move something we want to move.

AM: 25:56 And is there about a whole bunch of case reports, and letters over the last six years where especially from us, some small subgroup of physicians whose primary issue...well they were unhappy with the pain, but they were terribly unhappy with the inability to signal to the people in the room that they couldn't move.

JP: 26:13 Yeah, exactly, exactly. So, I think where this...we're talking about like (unsure of what was said)

MW: 26:17 Yeah

AM: 26:18 Great, thank you very much.

JP: 26:19 Thank you.

AM: 26:20 Okay.

JP: 26:21 Thanks.

Transcribed by Vanessa Soto. Reviewed by MW & AM; Dr Pandit emailed the transcripts on 12/11/17

1. Pandit, J.J. DREAMY: Direct REporting of Awareness in MaternitY patients (DREAMY): A multi-centre observational study of accidental awareness under general anaesthesia in obstetric surgery patients. 2017 12/11/17]; Available from: <http://www.uk-plan.net/DREAMY>.