



Understanding consent for surgery and for treatment in orthopaedics

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Consenting to treatment implies that a person gives permission before receiving any type of medical care, test or examination. The Consent protects the doctor from the accusation of an “unwanted touch”. Surgery is a complex medical act involving treatments, acts, and manoeuvres that could be harmful, although they are expected to be beneficial and amend positively the patient’s health. Prior to obtaining consent for the proposed succession of acts, the surgeon must provide the patient with information about the nature of the treatment, the expected benefits, material risks and adverse effects, alternate treatments, and the consequences of not having the surgery. Consent for surgery has become a critical component of surgical practice and is of increasing importance and must be updated with patient and legal expectations. For consent to be valid, it must be voluntary and informed, and the person consenting must have the capacity to make the decision. The principle of consent is an important part of medical ethics and international human rights law.

Indications for surgery are absolute and relative. In absolute indications for surgery, results of conservative therapy are unacceptably worse. Examples of absolute indications are slipped capital epiphysiolysis, cauda equina syndrome, some trauma cases, tumours etc. On the other hand, relative indication means that surgery is either not necessary, too risky for patients with co-morbidities, may be postponed or that the results of surgery are somehow comparable to conservative measures. In relative indications, noise must be differentiated from bias. According to Daniel Kahneman, winner of the 2002 Nobel Prize in Economics, noise

represents variability of error, whereas bias means that judgments follow the same direction [1].

Noise is a consequence of unwanted variability within a system of judgments: with the same clinical data diagnosis may vary according to various judgments (e.g. diagnostic or predictive). In bias, surgeon may consciously or unconsciously refuse to advise conservative therapy in spite of the fact that he might know that surgery is not effective to the degree the patient aspects it to be. Namely, commonly performed orthopaedic procedures may be effective overall or in certain subgroups, but high-quality evidence base shows that many commonly performed elective orthopaedic procedures are not any more effective than non-operative procedures [2]. However, absence of evidence is not evidence of absence, meaning that maybe evidence-based literature in case of highly successful operations is lacking, i.e. every surgeon knows how efficient total hip replacement is in the end stage arthrosis with contracture and pain and consequently no one analyses the results, since it is self-explanatory. Noise can be and should be reduced with knowledge, experience in interobserver opinion, whereas bias has different origin, namely tendency to operate “in case of doubt” due to various interests, which might be common to the majority of surgeons. Unnecessary surgery all over the world varies from 30 to 50% [3].

Performing any surgical procedure carry some degree of risk related to patient, anaesthesia, surgical procedure/ technique and surgeon. Some of the most common complication are as follows: deep infection, venous thromboembolism, joint instability and stiffness, post-operative leg length discrepancy and axis misalignment, vascular complications, nerve injuries, periprosthetic fractures, heterotopic ossification, complex regional pain syndrome and acute compartment syndrome. Sequellae and failure to cure are usually not included as complications. An estimated 22 million orthopaedic procedures were performed worldwide in 2017, and this number is only expected to grow [4]. Any surgical procedure is likely to have a complication rate of 10% or more. Any rate less than this is likely to indicate poor data collection [5], though huge differences exist in relation

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to specific surgery, age of patients, co-morbidities etc. In the USA, the rate of acute mortality after inpatient orthopaedic surgical procedures is approximately 1% for all patients and 3.1% for patients with a hip fracture [6].

Patients' perception of consent is apart from explanation given by surgeon dependent on many other aspects. Statistics is complicated to understand, even for professionals [7], because it cannot be "evolutionally understood". Group statistics is the only way to evaluate results scientifically, but for individual patient group statistic represents only certain probability, but no assurances. Mathematical possibility of adverse effect is completely out of proportion of the fear it produces, i.e. possibility of negative effect (e.g. pain from electrical stimulation) in the range of 50% produces fear in the same amount as the possibility for the same negative effect in the range of 0.1% [7]. Fear disappears only with zero possibility of negative effect to occur. Besides, when an unlikely event becomes the focus of attention, we will assign it much more weight than its probability deserves [7]. People are almost completely insensitive to variations of risk among small probabilities. Cognitive errors should be considered, e.g. 90% chance of surviving the surgery is perceived much better than 10% chance of dying. Loosing something is perceived more dramatically compared to gaining, e.g. loosing 100 € is equivalent to gaining 300€ (and not only 100€) [7].

Human cognitive capacity is limited, but it is prone to error when overtaxed [1, 7, 8]. This can happen when physicians perform multiple unrelated tasks while making decisions [7]. A doctor may manage several patients at once, is tired and must manually enter data into a computer. Requirements for documentation can be excessive, requiring evaluation and documentation of irrelevant history, review of systems, and physical exam points. These activities require cognitive energy.

Heuristics are the strategies derived from previous experiences with similar problems. The heuristics most widely studied within psychology are those that people use to make judgments or estimates of probabilities and frequencies in situations of uncertainty (i.e. in situations in which people lack exact knowledge). Three common sources of error were identified, so-called heuristics: availability, representativeness, and anchoring heuristics [8].

Availability is a mental shortcut that relies on recent examples when evaluating a decision. The availability heuristic operates on the notion that if something can be recalled, it must be important, or at least more important than alternative solutions which are not as readily recalled. Subsequently, under the availability heuristic, people tend to weigh their judgments heavily toward more recent information, making new opinions biased toward that latest news.

Representativeness is an error in estimating probability under uncertainty, i.e. failure to ask right questions about onset, details, duration without exploring possible

mechanisms and jumping to a conclusion before all relevant information has been obtained.

The third heuristic is termed anchoring. Anchoring is a cognitive bias found in people, where they rely on facts provided before a decision or estimation is made. This occurs when individuals rely too heavily on initial information to anchor the starting point for decision making. Anchoring refers to a cognitive heuristic that influences how people assess probabilities in an intuitive manner.

In consent to surgery patients are faced with potential noise or bias from the side of surgeon and are also subjected to unconscious psychological circumstances that are out of reach of rational understanding. Consequently, unnecessary surgery can be done and in order to avoid it patient should be lucky with the surgeon hoping the surgeon respects the golden rule (the principle of treating others as he wants to be treated). Patient needs luck also with respect to surgical skills and expertise of the surgeon who is hopefully a nice and friendly person, potentially familiar with common sources in decision making error. Hopefully the surgeon is not experimenting too much on the patient with new technologies in case established technologies have excellent long term results. Patient especially needs luck with a diagnosis and with the rate of early and long-term complications. He can only hope to be in the group of patients with better results. Anyway, hope is fine but not enough, altogether patients should be aware of that when signing the consent.

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