Tidsskriftet Tidsskrift for Den norske legeforening

More thinking is needed

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Sometimes diagnosis and treatment choices are obvious. More often, curiosity, reasoning and good judgement are required.

Photo: Sturlason

Diagnoses are made on the basis of the patient's reported symptoms and the doctor's findings in clinical examinations and supplementary investigations. Sometimes the diagnosis seems obvious: an experienced doctor will recognise a pattern that fits a certain disease. On other occasions – perhaps far more often – the diagnosis is not immediately apparent. In such cases, important symptoms and findings must be used as a basis for clinical reasoning and targeted tests that can lead to a more or less certain diagnosis.

These two diagnostic approaches fit well with what the Nobel prize-winning psychologist Daniel Kahneman calls System 1 and System 2 (1). According to his theory, humans have two different modes of thinking: System 1 is fast and automatic, and is based on knowledge and experience, while System 2 is based on concentration, and is slow and effortful. Both systems have their strengths and weaknesses. Kahneman's book *Thinking, Fast and Slow* has been widely read and was reviewed in the Journal of the Norwegian Medical Association a few years ago (2).

Making a quick diagnosis can be safe and effective, and can save time in many situations. However, System 1 thinking is also the source of many errors of judgement because there is a strong tendency – even among doctors – to overlook information and findings that do not fit with an initial conclusion (1, 3, 4). When something is out of kilter with the anamnesis or findings, it is important to stop and think. It is therefore vital to listen carefully to the patient and have trust in them. That is what is needed when the doctor is in a difficult clinical situation and does not quite know what to do. It requires more effort and takes longer, but it reduces the risk of error.

System 1 thinking should not be confused with guessing. The diagnostic process must never become a guessing game. In my many years of teaching medicine, I have unfortunately seen far too many students *guessing* the diagnosis when asked for their diagnostic assessment of a patient they have just examined (5). Are they influenced by learning tools that reward quick answers? Are they shaped by exam assignments with multiple choice answers (6) where they have found out that guessing incorrectly has few or no negative consequences?

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Clinicians may rely on guidelines from various sources when selecting a test or treatment. Guidelines are there to ensure that as many patients as possible receive the treatment they are entitled to and to help keep doctors up to date. Treatment algorithms have proven useful in many clinical situations, but guidelines and algorithms are often based on group-level data and do not always take individual contexts into account (7, 8). Social and other conditions and personal preferences will vary. The doctor must therefore be able to listen and make an assessment, and perhaps deviate from the guidelines, i.e. think.

Thinking, reasoning and probability theory are key elements of clinical practice and medical research (9). Quantitative research is based on numbers, and in clinical research we count the number of patients, provide a well-defined

treatment and measure efficacy and adverse effects. However, it is not always obvious which is the best treatment in a randomised clinical trial. Different doctors and patients can interpret the results in different ways, and the findings may differ from other trials. Study populations may consist of unrepresentative groups, for example only men below the age of 70 with no comorbidities. Clinical studies must always be placed in a context, and quantitative findings need to be interpreted. Also, treatment choices may be value-based, with personal preferences and values being the deciding factors.

By conducting a clinical trial, researchers can confirm or refute a pre-defined hypothesis. Few trials, however, will provide the Final Answer, and an original article will often end with the classic phrase 'more research is needed'. But is it always like this? When there are already countless studies on the topic in question, perhaps no more are needed. Systematic review papers and meta-analyses can help, but often what is needed is more thinking and less resistance to making decisions. The search for perfect evidence can act as a barrier to doing the right thing. As Trisha Greenhalgh, the renowned champion of evidence-based medicine, said in the discussion about face masks during the COVID-19 pandemic: what we need is not more research, but more thinking (10).

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Publisert: 20 October 2022. Tidsskr Nor Legeforen. DOI: 10.4045/tidsskr.22.0598