

# The law of therapeutic parsimony

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Modern diabetes care is characterized by an ever increasing number of pharmacological options. Treatment goals for various aspects of diabetes management, such as glycated hemoglobin (HbA1c), blood pressure, and lipids, have also become stringent.<sup>[1]</sup> This encourages polypharmacy and makes therapeutic decision-making a challenge. This challenge may enhance, instead of alleviate, clinical errors and clinical inertia.

One way of avoiding this is to use lesser pharmaceutical intervention wherever possible. We term this “The Law of Therapeutic Parsimony,” which states “minimal therapeutic interventions should be used, in place of multiple ones, as long as this can achieve equivalent therapeutic outcomes.”

According to the Law of Therapeutic Parsimony, the least required number of drugs, drug combinations, or drug preparations should be used, in the least required dose and frequency of dosing, to achieve predecided therapeutic outcomes. Therapeutic parsimony promotes safety and tolerability by reducing the risk of side effects, and facilitates adherence using less complex regimes, but does not compromise on efficiency.

The Law derives from Occam’s razor, which states “pluralitas non est ponenda sine necessitate” or “plurality must not be posited without necessity.”<sup>[2]</sup> It is also similar to the Law of Diagnostic Parsimony, which encourage identification of one diagnosis to explain multiple symptoms, sign and laboratory anomalies.<sup>[3]</sup> The Law of Diagnostic Parsimony is well-known to all students of medicine. A person presenting with a neck swelling, prominent eyes, and increased pulse rate, for example, is given a single diagnostic label of Graves’ disease, rather than three diagnoses of goiter, exophthalmos, and tachycardia. From a diabetes perspective, diagnostic parsimony would prefer identification (and management) of diabetic nephropathy, rather than have separate approaches to coexistent anemia,

hypertension, hyperglycemia, and reduced glomerular filtration rate.

Till recently, it has been difficult to apply the law of therapeutic parsimony to the field of diabetes care. More often than not, diabetes presents with other aspects of metabolic syndrome, which need simultaneous attention. Multiple drugs, with differing mechanisms of action, have been required to address the multiple pathophysiologic abnormalities present in diabetes and ensure comprehensive metabolic control.<sup>[4,5]</sup>

Newer molecules, fixed dose combinations (FDCs), and fixed-ratio combinations, however, are now available and are apposite options for management of diabetes. Glucagon-like peptide-1 receptor agonists and sodium glucose co-transporter 2 inhibitors are able to achieve composite endpoints, including lowering of glucose, blood pressure, lipids, and weight.<sup>[6,7]</sup> These drugs are relatively simple to use, often in a once daily dose, with minimal titration requirement, flexibility in timing of administration, and can be co-formulated with basal insulin and metformin. Insulin co-formulations and premixed analogs also offer comprehensive glycemic control, including lowering of fasting glucose, postprandial glucose, and HbA1c, in a safe and well-tolerated manner.

Such characteristics encourage greater adherence to therapy and facilitate achievement of optimal therapeutic outcomes. Drugs which achieve comprehensive glucometabolic modulation are, therefore, a welcome addition to the therapeutic landscape of diabetes. Their usage simplifies management plans, allows correction of multiple pathological anomalies, reduces the burden on pharmacies, and limits costs.

It is relatively easy, therefore, to put the Law of Therapeutic Parsimony into practice now. Use of co-formulations, premixed insulin, and oral FDCs can reduce injection frequency and pill burden for the patient. Prescription of rational combinations allows administration of lower doses of individual molecules, which reduces the possibility of adverse events, and enhances tolerability. Choice of modern

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drugs which offer broad spectrum glucometabolic control, including glucose, blood pressure, weight, and lipid control, helps facilitate this process.

We therefore suggest that the Law of Therapeutic Parsimony be included as a cardinal guiding principle of therapeutics in diabetology.

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