Management of Hyperglycemia in Type 2 Diabetes, 2015: A Patient-Centered Approach

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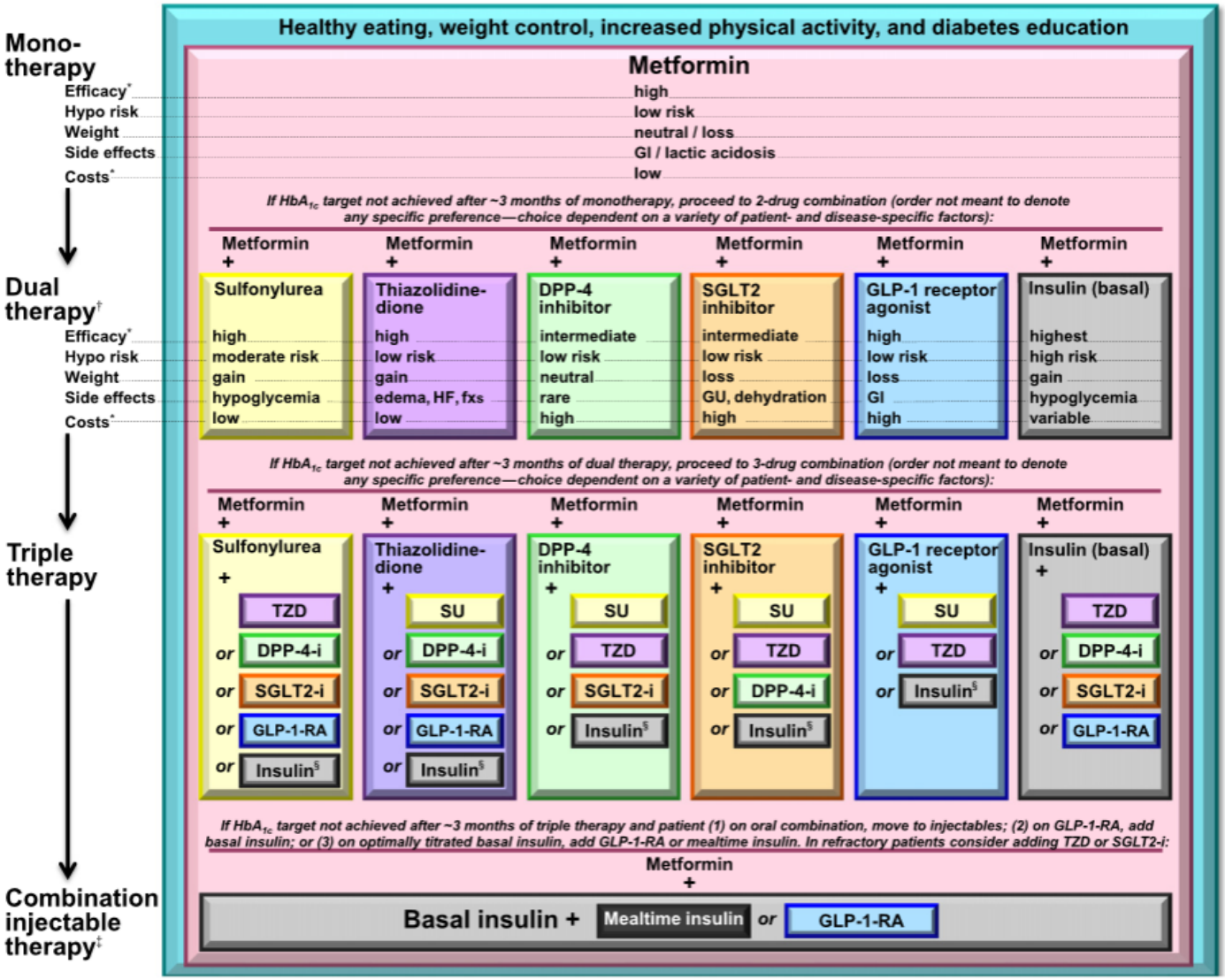

Figure 2—Antihyperglycemic therapy in type 2 diabetes: general recommendations. Potential sequences of antihyperglycemic therapy for patients with type 2 diabetes are displayed, the usual transition being vertical, from top to bottom (although horizontal movement within therapy stages is also possible, depending on the circumstances). In most patients, begin with lifestyle changes; metformin monotherapy is added at, or soon after, diagnosis, unless there are contraindications. If the HbA_{1c} target is not achieved after ~3 months, consider one of the six treatment options combined with metformin: a sulfonylurea, TZD, DPP-4 inhibitor, SGLT2 inhibitor, GLP-1 receptor agonist, or basal insulin. (The order in the chart, not meant to denote any specific preference, was determined by the historical availability of the class and route of administration, with injectables to the right and insulin to the far right.) Drug choice is based on patient preferences as well as various patient, disease, and drug characteristics, with the goal being to reduce glucose concentrations while minimizing side effects, especially hypoglycemia. The figure emphasizes drugs in common use in the U.S. and/or Europe. Rapid-acting secretagogues (meglitinides) may be used in place of sulfonylureas in patients with irregular meal schedules or who develop late postprandial hypoglycemia on a sulfonylurea. Other drugs not shown (α-glucosidase inhibitors, colesevelam, bromocriptine, pramlintide) may be tried in specific situations (where available), but are generally not favored because of their modest efficacy, the frequency of administration, and/or limiting side effects. In patients intolerant of, or with contraindications for, metformin, consider initial drug from other classes depicted under "Dual therapy" and proceed accordingly. In this circumstance, while published trials are generally lacking, it is reasonable to consider three-drug combinations that do not include metformin. Consider initiating therapy with a dual combination when HbA_{1c} is ≥9% (≥75 mmol/mol) to more expeditiously achieve target. Insulin has the advantage of being effective where other agents may not be and should be considered a part of any combination regimen when hyperglycemia is severe, especially if the patient is symptomatic or if any catabolic features (weight loss, any ketosis) are evident. Consider initiating combination injectable therapy with insulin when blood glucose is ≥300–350 mg/dL (≥16.7–19.4 mmol/L) and/or HbA_{1c} ≥10–12% (≥86–108 mmol/mol). Potentially, as the patient's glucose toxicity resolves, the regimen can be subsequently simplified. DPP-4-i, DPP-4 inhibitor; fxs, fractures; GI, gastrointestinal; GLP-1-RA, GLP-1 receptor agonist; GU, genitourinary; HF, heart failure; Hypo, hypoglycemia; SGLT2-i, SGLT2 inhibitor; SU, sulfonylurea. *See Supplementary Data for description of efficacy categorization. †Consider initial therapy at this stage when HbA_{1c} is ≥9% (≥75 mmol/mol). ‡Consider initial therapy at this stage when blood glucose is ≥300–350 mg/dL (≥16.7–19.4 mmol/L) and/or HbA_{1c} ≥10–12% (≥86–108 mmol/mol), especially if patient is symptomatic or if catabolic features (weight loss, ketosis) are present, in which case basal insulin + mealtime insulin is the preferred initial regimen. §Usually a basal insulin (e.g., NPH, glargine, detemir, degludec).