MyCGMBuddy

Track- Patient Engagement, Big Data and Machine Learning, Patient Safety

Team: GileadsBizarreAdventure

Pitt Challenge 2022

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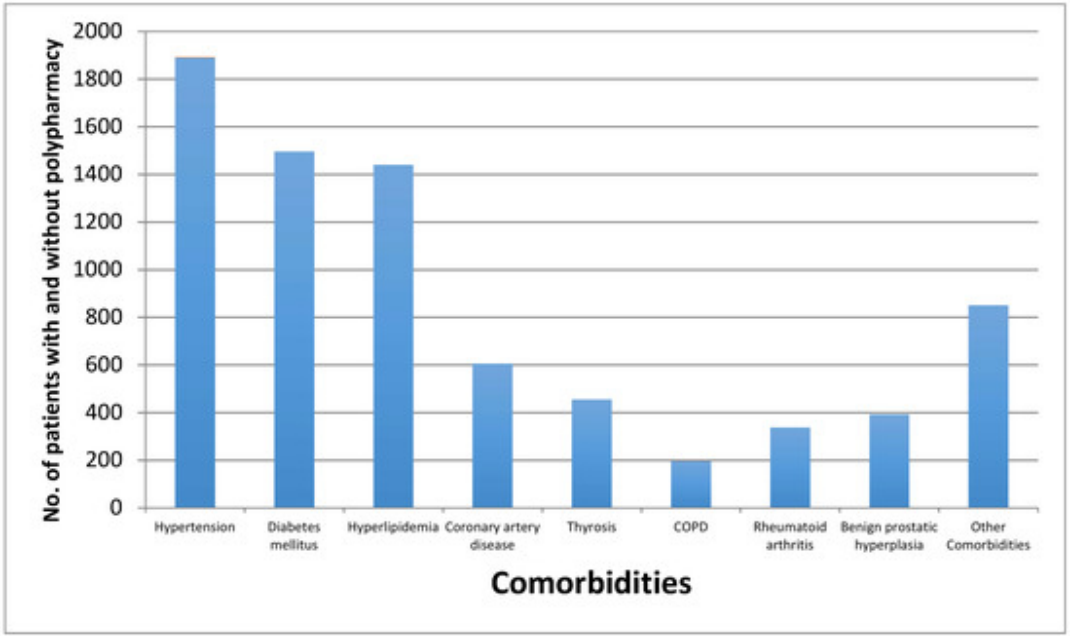
INSULIN

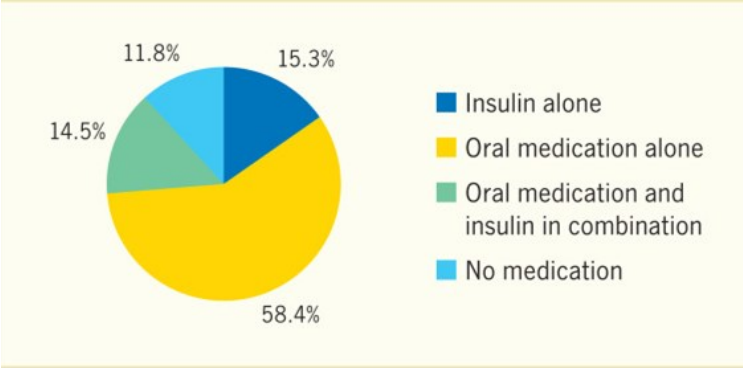
- Peptide hormones produced by beta cells of pancreatic islets
- Mainly used for the treatment of Type 1 diabetes
- Subcutaneous Injections, Insulin Pumps, Insulin Pens, Inhaled Insulin

TABLE. DRUG INTERACTIONS WITH INSULIN

Drug Class	Potential Interaction
Glucocorticoids • Dexamethasone • Prednisolone • Prednisone • Methylprednisolone	• Promote peripheral insulin resistance and increase visceral adipose tissue • Increase requirement for insulin during steroid therapy
Antidiabetic drugs • Glipizide • Glimepiride • Glyburide • Nateglinide • Repaglinide	• Stimulate insulin release from pancreatic beta cells • Rise in endogenous insulin may decrease amount of exogenous insulin therapy required
Oral contraceptives • Ethinyl estradiol • Medroxyprogesterone	• May cause insulin resistance via estrogen receptor stimulation in the pancreas[8]
Antipsychotics • Clozapine • Olanzapine	• Weight gain can decrease insulin secretion and increase insulin resistance
Immunosuppressants • Cyclosporine • Sirolimus • Tacrolimus	• Less insulin secretion from pancreatic beta cells leads to increased requirement for exogenous insulin
Antibiotics • Fluoroquinolones • Sulfa antibiotics	• Stimulate endogenous insulin secretion, potentially lowering amount of exogenous insulin required
Thiazide diuretics • Chlorthalidone • Chlorothiazide • Hydrochlorothiazide	• Reduce glucose-dependent insulin release[9] • Increase peripheral resistance to insulin • Inhibit glucose uptake in periphery
Beta-blockers • Labetalol • Nadolol • Propranolol	• Nonselective beta-blockers may inhibit insulin release from pancreatic beta cells via beta receptor blockade
Alcohol	• Chronic, heavy use associated with peripheral insulin resistance and may require increased insulin

Polypharmacy- Risk of potential Interactions





MyCGMBuddy- Patient Engagement at its BEST

Problem Statement:

- Patients with Type 1 diabetes have limited tools for dose monitoring- Most of the tools are catered for Type 2
- Diabetic patients need to control daily activity, exercise and diet apart from using continuous glucose monitor (CGM)
- Diabetic patients need to take other medications for hypertension(ACE inhibitors), proton pump inhibitors, statins for cholesterol control
- **Patients are not aware of potential interactions that occur with co-medications**
- CGM devices dictate dose changes purely on glucose levels and do not inform interactions

What makes MyCGMBuddy different

1. Real-time, Dynamic
2. Continuous glucose monitor data leveraged for better adjustment of daily insulin doses during co-medication therapy
3. Built- in dosage algorithms for Type 1 Diabetes Mellitus (T1DM) with output of dose change needed
4. User-friendly interface built in collaboration with pharmacokineticists