Attitudes and Behaviors of Appropriate Metformin Prescribing for Type 2 Diabetes

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Introduction

Metformin:

- Only oral diabetes medication with proven benefits on cardiovascular morbidity and mortality
- Inexpensive medication
- Metformin prescribing remains sub-optimal
Lactic Acidosis, potential risk factors:
- Chronic kidney disease
- Hepatic dysfunction
- Heart failure
- COPD
- Alcohol abuse
- History of lactic acidosis

There is little information on the exact risk of lactic acidosis with metformin and the risk is estimated to be less than that of the general population.
“Eat less and exercise more? That’s the most ridiculous fad diet I’ve heard of yet!”
To provide a better understanding of metformin prescribing behaviors among health professionals in various patient circumstances
Methods

- Anonymous, electronic survey distributed to health professionals
- Health care professionals chosen based on ongoing professional relationships with the study investigators
Target Participants

- Medical residents
- Physicians
- Nurse practitioners
- Physician assistants
- Pharmacists
Survey Development

- Written by pharmacy team based on known hesitations regarding metformin prescribing
- Vetted by Team 1 Physicians
If a 50 year old patient with uncontrolled diabetes and an A1C of 8.3% is on metformin 500 mg per day and tolerating it well, which of the following would you be most likely to do?

- Titrate metformin to a target dose of 1,500 mg/day
- Titrate metformin to a target dose of 2,000 mg/day
- Add a sulfonylurea
- Add a dipeptidyl-peptidase-4 (DPP-4) inhibitor
Most providers titrate to 2000mg per day to reach goal A1C rather than adding another agent.

Some titrate to 1500mg instead.

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<table>
<thead>
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<th>50 year old patient, A1C of 8.3%, on metformin 500 mg per day and tolerating it well, what do you do? (% Response)</th>
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If a 50 year old patient with uncontrolled diabetes and an A1C of 7.3% is on metformin 1,500 mg per day and tolerating it well, which of the following would you be most likely to do?

- Titrate metformin to a target dose of 2,000 mg/day
- Add basal insulin
- Add a sulfonylurea
- Add a dipeptidyl-peptidase-4 (DPP-4) inhibitor
Most providers titrate to 2000mg per day in uncontrolled patients with A1C’s

However, some did choose to add a sulfonylurea instead

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For a 50 year old male patient with chronic kidney disease and diabetes taking metformin 1,750 mg per day, at what point would you stop the metformin?

- When the serum creatinine is greater than 1.5
- When the CKD-EPI eGFR is <60mL/min
- When the CKD-EPI eGFR is <30mL/min
- When the CKD-EPI eGFR is <15mL/min or patient is on dialysis
- You would not stop the metformin
Most providers follow the package insert guidelines for metformin use by stopping use at Scr > 1.5.

More providers viewed GFR as a better indicator of renal function.

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Conclusions

- Better education regarding maximal benefit of metformin dosing is needed
- Clearer guidance with regards to indications to stop metformin are needed (likely ok to continue metformin despite certain degree of renal dysfunction)
- Risk of lactic acidosis quite low and likely over-recognized as risk
Lessons Learned

- Working with other healthcare professionals = more enjoyable
- Projects like this are feasible despite busy schedules