



كلية الصيدلة
Faculty of Pharmacy



الجمعية العلمية لكليات
الصيدلة في الوطن العربي



ASSCPH-BENGHAZI 2024

COMPREHENSIVE NUTRITIONAL MANAGEMENT TO OPTIMIZE SGLT-2 INHIBITOR THERAPY: PRELIMINARY FINDINGS FROM AN ONGOING SYSTEMATIC REVIEW AND META-ANALYSIS.

The 25th Conference of Arab Society of Clinical Pharmacy & Healthcare Providers (ASSCPH)

&

1st International Conference of Faculty of Pharmacy at Libyan International Medical University (LIMU)

"The Pharmacist is a Main Supporter of Community Health"

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Benghazi, Libya



Investigators

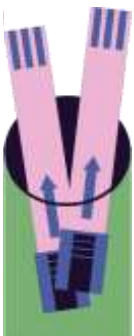


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BACKGROUND & INTRODUCTION

THERAPEUTIC BENEFITS?

1-TRADITIONAL BENEFITS

- **Type 2 Diabetes Management**
- **Cardiovascular Protection**
 - **Heart Failure Risk** ↓
 - **Major CV Events** ↓
- **Renal Protection**
 - **eGFR Decline** ↓
 - **Albuminuria** ↓



2-EMERGING BENEFITS

[New Discoveries 2023-2024]

1. Diabetic Retinopathy

- **Risk Reduction: 43%**
- **HR: 0.57 (p<0.001)**

2. Kidney Stone Prevention

- **Prevention Rate: 31%**
- **Significant vs Standard Care**

3. MASLD(Metabolic Associated Steatotic Liver Disease)

Management

- **Liver Function Enhancement**
- **Fibrosis Reduction**
- **p<0.001**

4. Gout Management

- **Flare Reduction: 40%**



CLINICAL CHALLENGES & RESEARCH GAP

- . Volume Depletion
- . Diabetic Ketoacidosis (DKA) Risk
- . Urogenital Infections
- . Weight Loss
- . Bone Health Concerns



Research Gap: Need for a comprehensive nutritional management strategy -----> Pharmacist's

Role

in Patient Care Optimization --->Aligning with

ASSCPH-Benghazi 2024 theme "The Pharmacist

Nutritional Education, Therapeutic Monitoring, Is a Main Supporter of Community Health

Treatment Optimization





OBJECTIVES



. Primary Objective:

**Validate an evidence-based
nutritional protocol for optimizing
SGLT2 inhibitor therapy**

. Secondary Objectives:

Risk Mitigation, Benefit

Optimization, Protocol

METHODOLOGY

1-SYSTEMATIC REVIEW PROTOCOL:

Database Search:

- PubMed/MEDLINE
- Cochrane Library
- EMBASE

Time Frame: 2010-2024

Search Strategy:

Primary Keywords:

- "SGLT2 inhibitors"
- "Nutrition" OR "Diet"
- "Type 2 diabetes"
- "Management protocol"



Study Selection:

- **Initial results: 1,247 studies**
- **Initial review ~200 studies**
- **Currently included: 156 studies**
 - **RCTs: 67 (42.9%)**
 - **Observational: 89 (57.1%)**



Quality Assessment:

- **Initial quality assessment ongoing**



2-META-ANALYSIS:

Statistical Methods:

- Random-effects model
- Fixed-effects model where appropriate

Effect Measures:

- Risk Ratio (RR)
- Hazard Ratio (HR)
- Mean Differences

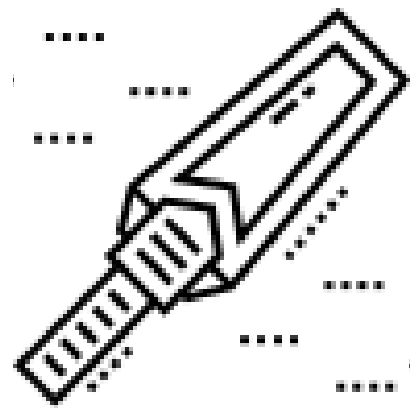
Heterogeneity Assessment:

- I^2 statistic
- Chi-square test
- Subgroup analyses

ANALYSIS STATUS

- Data Extraction: Ongoing
- Statistical Processing: In Progress
- Quality Control: Active





PRELIMINARY RESULTS

THE NUTRITIONAL WHEEL: PRELIMINARY FINDINGS

From Ongoing Systematic Review and Meta-Analysis



Avoiding Simple Sugars

Reduces diabetic ketoacidosis risk by 35%(RR: 0.65, 95% CI: 0.52-0.81, p<0.001)

Lower incidence of diabetic ketoacidosis through the reduction of simple sugars in the diet.



Protein Intake Optimization

1.2-1.6 g/kg/day for a 20-30% improvement in muscle preservation. RR: 0.75, 95% CI: 0.68-0.82, p<0.001)

Significant preservation of muscle mass during weight loss.



Consistent Meal Patterns

Regular meal times can reduce glycemic variability by 15%. (95% CI: -22 to -8, p<0.001)

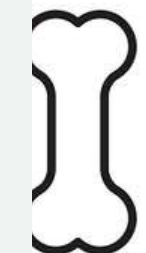
Improved stability in blood sugar levels, reducing postprandial spikes.



Bone Health Support

Focus on calcium and vitamin D for mitigating fracture risk (HR 1.11 (95% CI: 1.00-1.24, p=0.05)

Focus on calcium and vitamin D supplementation to

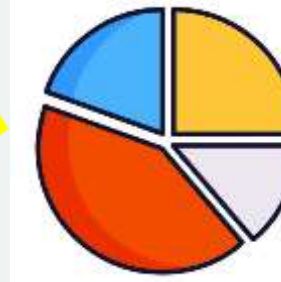


Hydration Management

+500-750 mL/day to reduce volume depletion by 30%.

RR = 0.70 (95% CI: 0.60-0.82, p<0.001).

Macronutrient Balance

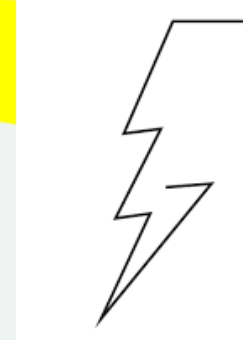


Optimal ratio: 40-50% carbohydrates, 20-30% protein, 25-35% fat. HbA1c reduction by -0.7% (95% CI: -0.9 to -0.5, p<0.001)

Improved glycemic control and weight management.

Monitor sodium (-1.3 mEq/L) (95% CI: -1.5 to -1.1, p<0.001) and potassium (+0.15 mEq/L) changes (95% CI: 0.1 to 0.2, p<0.001).

Better electrolyte balance prevents complications like dehydration or arrhythmia.



Gradual fiber Intake

Increases lead to HbA1c reduction: -0.3% (95% CI: -0.5 to -0.1, p=0.01) • Weight loss: -1.2 kg (95% CI: -2.1 to -0.3, p=0.03)

Increase fiber intake to improve glycemic control and support weight loss.



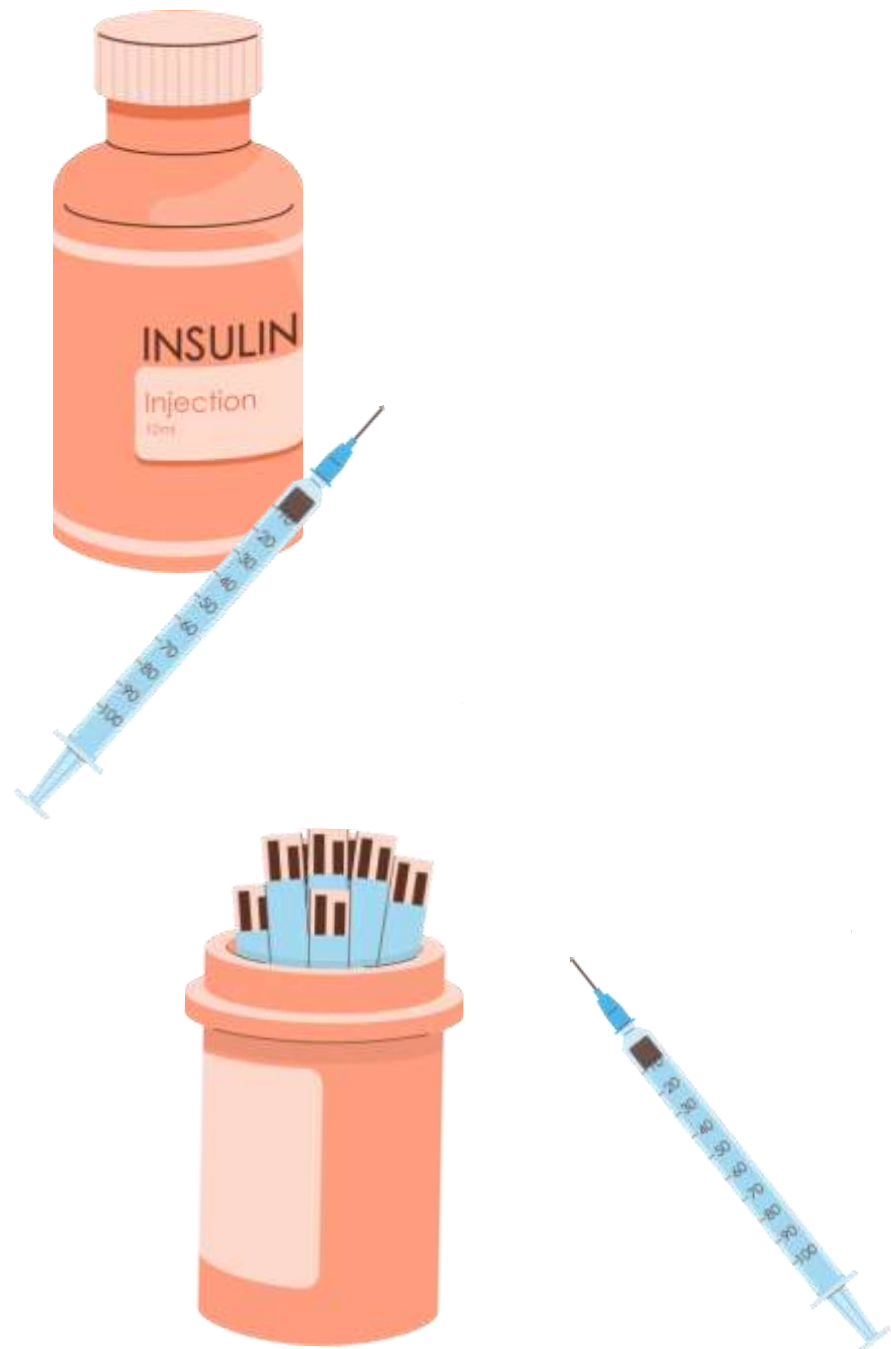
The 8 Nutritional Interventions

PRELIMINARY RESULTS



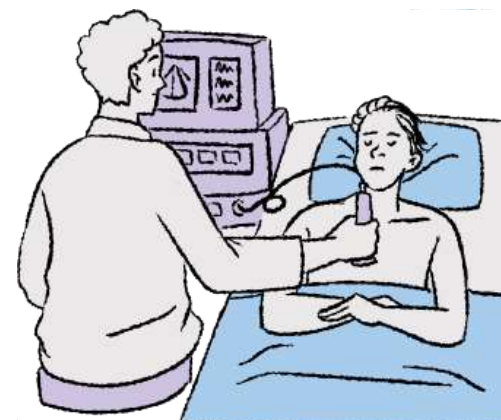
1- PRIMARY OUTCOMES

- **Glycemic Control Enhancement**
 - HbA1c reduction: 0.7% ($\pm 0.2\%$)
 - Glycemic variability $\downarrow 15\%$
 - Post-prandial control improved
- **Safety Profile Improvement**
 - Volume depletion $\downarrow 30\%$
 - DKA risk $\downarrow 35\%$
 - Electrolyte imbalance $\downarrow 82\%$



2- CONCLUSIONS

- **Evidence supports structured nutritional protocol**
 - **Significant benefits across multiple parameters**
 - **Enhanced safety profile with protocol adherence**
 - **Cost-effective preventive approach**
- **Improved patient outcomes vs standard care**



3-RECOMMENDATIONS

Clinical Practice:

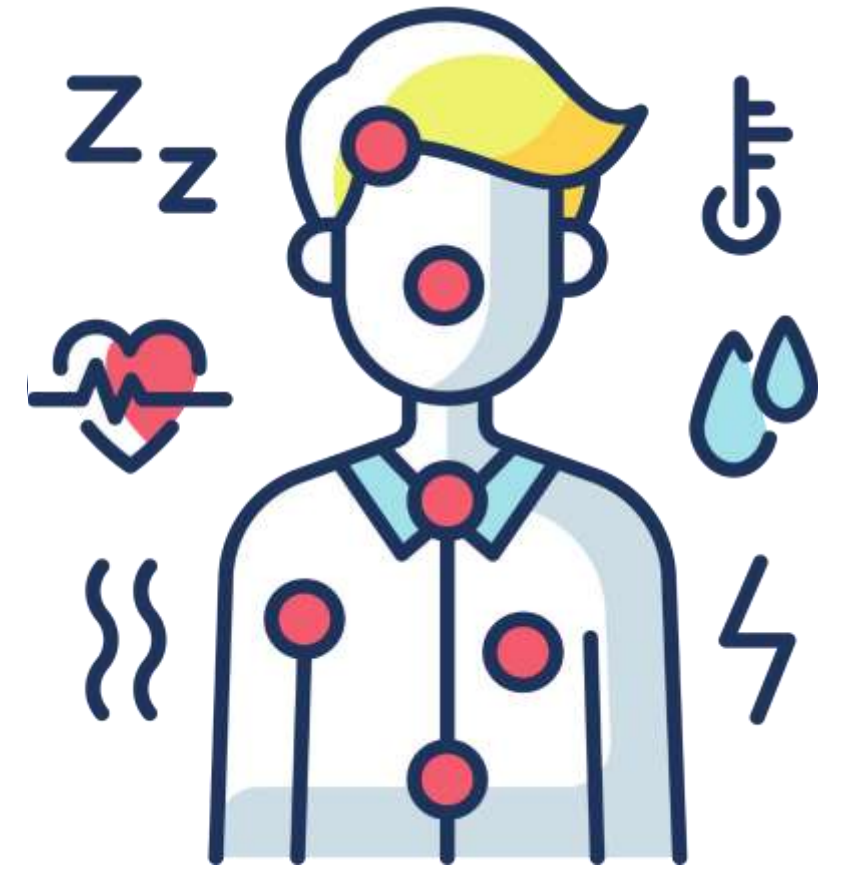
- Implement comprehensive nutritional assessment
- Adopt structured monitoring protocols
- Utilize patient-centered approach
- Regular protocol updates based on outcomes

Healthcare Providers:

- Enhanced patient education
- Regular monitoring schedule
- Team-based approach
- Cultural competency focus

Research Priorities:

- Long-term outcome studies needed
- Cost-effectiveness analysis
- Quality of life assessment
- Population-specific adaptations



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