Micro-Costing Analysis of the Economic Burden of Metabolic Dysfunction-Associated Steatohepatitis and Its Comorbidities in Saudi Arabia

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INTRODUCTION

- Metabolic dysfunction-associated steatohepatitis (MASH) represents a growing public health and economic burden globally and in Saudi Arabia.
- This is exacerbated by the limited availability of approved treatments and inadequate public health policies to curb its incidence.

OBJECTIVE

To estimate the direct healthcare costs associated with MASH and its common comorbidities in the Saudi Arabia from a payer perspective using a micro-costing approach

METHODS

- Study Design:
  - Targeted literature review followed by cross-sectional survey
- Literature Review:
  - Targeted review conducted to identify healthcare resource utilization (HCRU) and cost inputs to inform the micro-costing approach
- Survey Method:
  - In-depth virtual interviews (60–75 minutes) with clinical experts
  - Explored patient volume, diagnosis, treatment patterns, and associated costs
- Survey Focus Areas:
  - Epidemiology of metabolic dysfunction-associated steatohepatitis (MASH)
  - HCRU and costs associated with:
    - Cardiovascular complications
    - Obesity
    - Diabetes
    - Postmenopausal breast cancer
    - Colon cancer
    - Postmenopausal endometrial cancer
- Survey Period:
  - October to December 2024
- Participants:
  - 16 clinical experts across Saudi Arabia with 10–15 years of experience
  - Specialties:
    - Endocrinology (n = 2)
    - Diabetology (n = 2)
    - Oncology (n = 4)
    - Hepatology (n = 4)
    - Cardiology (n = 4)

RESULTS

- The average annual direct cost per patient increased with disease severity, ranging from USD 4,708.26 at fibrosis stage F0 to USD 104,627.97 for hepatocellular carcinoma.
- Liver transplant costs were USD 75,288.69in the first year and USD 6,301.26 annually thereafter.
- Among comorbidities, distant colon cancer 31,786.29, obesity (USD 19,066.05), and myocardial infarction (USD 15,930) were among the highest cost drivers.
- Additional economic burden of comorbidities were frequently observed in patients with MASH, including diabetes, stroke, and malignancies.
- Table 1. and 2 provides the overall cost per fibrosis stage and MASH complications based on the micro -costing approach and survey data provided by the KOLs.

Table 1. Overall cost by fibrosis stage

Fibrosis stage	Annual cost ($)
Fibrosis stage 0	4,650
Fibrosis stage 1	4,835
Fibrosis stage 2	5,952
Fibrosis stage 3	8,479
Compensated cirrhosis	9,835
Decompensated cirrhosis	12,355
Hepatocellular carcinoma	103,336
Liver transplant (year 1)	74,359
Liver transplant (year 2+)	6,223

Table 2. Cost of Complications

Complication	Cost ($)
Cardiovascular disease	Myocardial infarction (MI) = 15,733, Post MI = 3,597, Stroke= 11,730 , Post-stroke =1,902, Coronary heart disease = 3,834 , Transient ischemic attack (year 1) = 3,997 , Peripheral arterial disease = 3,333, CV death = 1,369
Obesity	Total cost = 18,831
Diabetes (Type 2 diabetes microvascular complications)	Total cost = 5,726
Colon cancer	Colon cancer (year 1) = 9,428 , Localized colon cancer = 9,018 , Regional colon cancer = 5,914 , Distant colon cancer = 31,394
Postmenopausal breast cancer (year 1)	Diagnosis, outpatient visits, and monitoring tests = 8,951 , Chemotherapy = 14,993, Total cost = 23,944
Postmenopausal endometrial cancer	Postmenopausal endometrial cancer (year 1) = 8,428

CONCLUSIONS

- This study shows that MASH places a heavy economic burden in Saudi Arabia, which increases with disease severity and related health conditions.
- These results stress the need for effective treatments and preventive measures to improve patient outcomes and reduce overall costs.

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References available upon request

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