

# Unusual occurrence of hepatitis B infection in Upper Egypt

Gamal Soliman<sup>1</sup>, Mahmoud S. Elzalabany<sup>2</sup> and F. DeWolfe Miller<sup>3</sup>

1. Faculty of Medicine, Al-Azhar University, Tropical medicine, Gastroenterology and Hepatology Department, Cairo, Egypt
2. Ahmed Maher Teaching Hospital, Internal Medicine Department, Cairo, Egypt
3. John A. Burns School of Medicine, University of Hawaii, Honolulu, HI, United States

## INTRODUCTION

Egypt is well known for its high HCV prevalence [1]. The Egyptian government has implemented a very effective program to eradicate HCV, which includes mass screening campaigns to diagnose the asymptomatic cases and widespread treatment program [2].

On the other hand, there is little information available about the prevalence of HBV in Egypt.

## METHODS

Luxor HCV Treatment Center was established in 2016 by Tahya Misr Fund to help fight HCV infection in Luxor city and the surrounding areas in Upper Egypt. The center adopted a unique mass screening program for both HBV and HCV.

Participants aged 16 years and older were screened, at no cost, for anti-HCV antibodies (anti-HCV) and hepatitis B surface antigen (HBsAg) using third generation enzyme immunoassays (Enzygnost® Anti-HCV and HbsAg).

In this report, we focus on Luxor HBV screening results and compare it to results of the 2015 Egyptian Health Issues Survey (EHIS), a large nationwide screening study [3].

## RESULTS

From June 2016 to May 2017, 67,007 persons were screened for HBsAg at Luxor center, including 31,945 males (47.7%) and 35,062 females (52.3%). The mean age was 43.6 years.

2947 persons (4.4%) were positive for HBsAg. HBsAg prevalence was significantly higher in males versus females (6.2% vs. 2.75% OR = 2.3; p < 0.0001). The age structure of HBsAg prevalence has a steep increase to age 31 (7.7%) followed by a decline to age 60 and then flattens.

In EHIS 2015, 26,047 persons aged 1-59 years were screened for anti-HCV, Hepatitis B core antibody (HBcAb) and HBsAg. We included only data of participants aged 15-59 years (n= 16,003) for comparison with Luxor results.

The overall prevalence of HBcAb was 15.7% (18.8% in males – 13.2% in females), compared to 1.5% for HBsAg (2% in males – 1.2% in females).

274 persons (1-59 years) from Luxor area were screened in EHIS 2015, in which HBcAb and HBsAg prevalence was 18% and 1.7% respectively.

Table (1): Results of HBsAg screening in Luxor and EHIS 2015 stratified by gender.

Luxor HBsAg results				
Gender	Positive	Negative	Total	Prevalence (%)
Female	965	34097	35062	2.8
Male	1982	29963	31945	6.2
Total	2947	64060	67007	4.4
EHIS 2015 HBsAg results (Age 15-59)				
Gender	Positive	Negative	Total	Prevalence (%)
Female	106	8732	8838	1.2
Male	144	7021	7165	2
Total	250	15753	16003	1.5

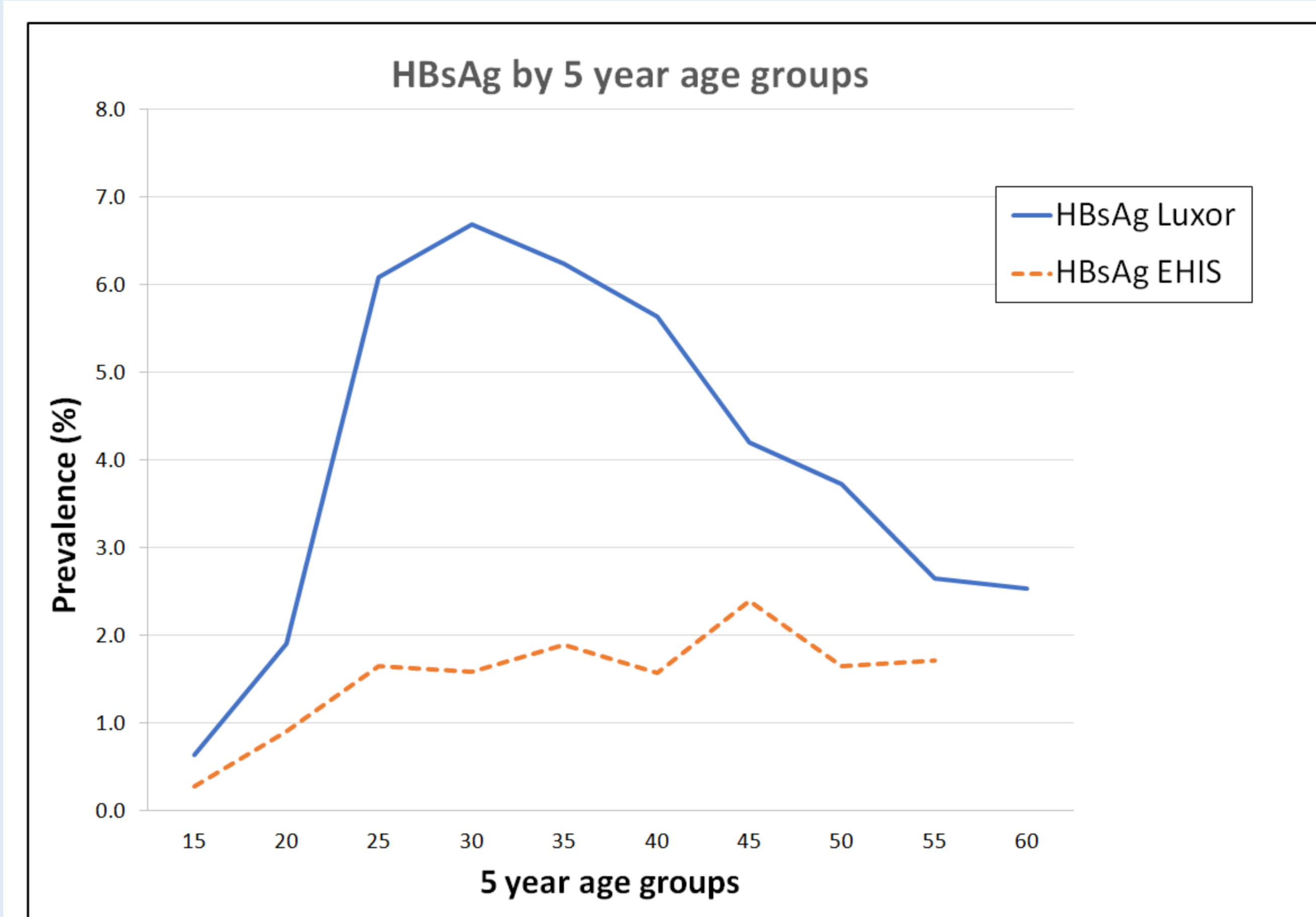


Figure (1): Comparison between HBsAg prevalence in the current study and the 2015 national estimate.

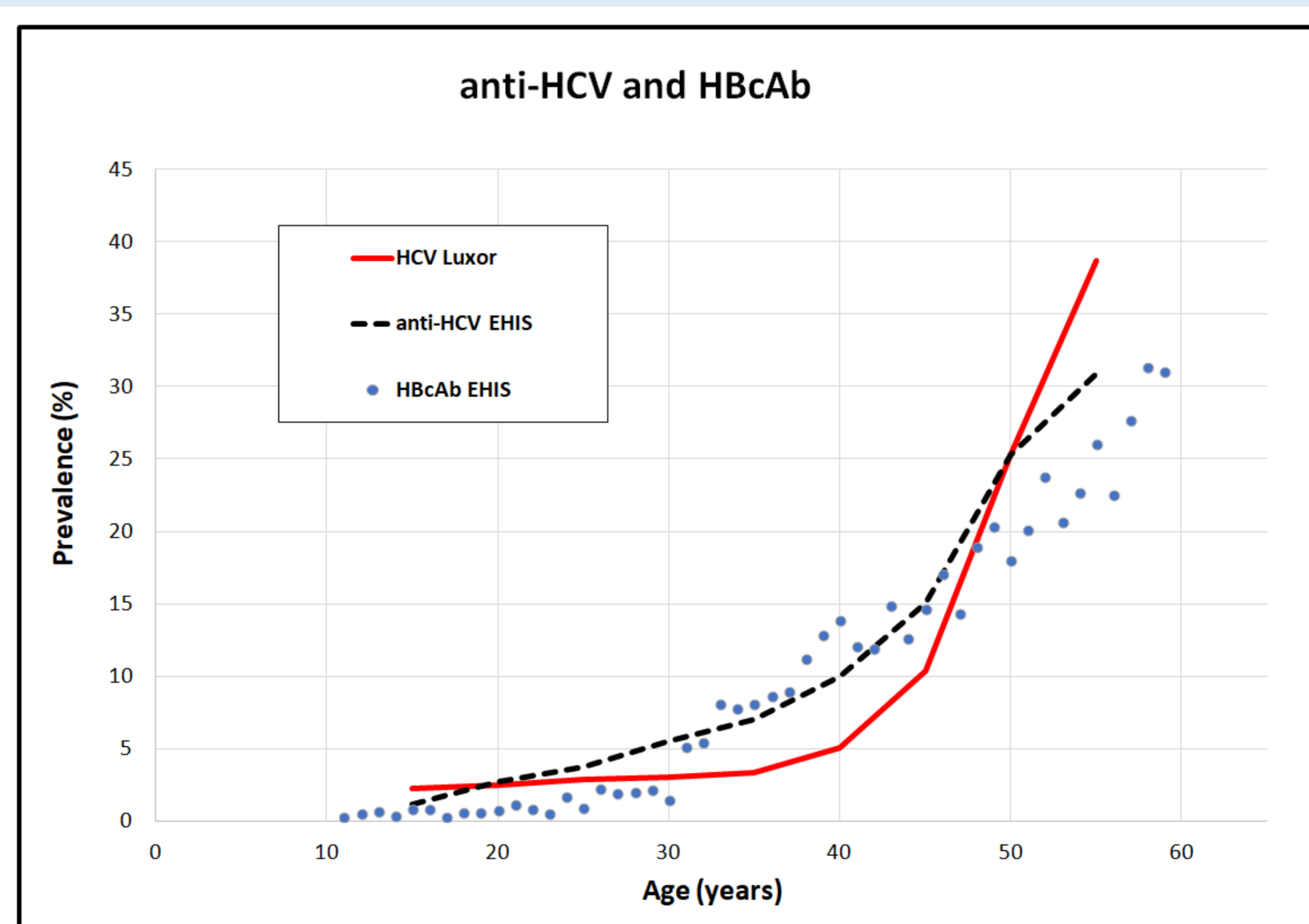


Figure (2): Comparison between Anti-HCV antibodies prevalence in the current study and EHIS 2015 and HBcAb in EHIS 2015.

## CONCLUSION

HBV infection is high in Egypt as indicated by the high prevalence of HBcAb (15.7%) reported in EHIS. Luckily, the majority of these infections are spontaneously resolved, and 1.5% only progress to chronic infection (HBsAg positive).

Luxor study showed a higher HBsAg prevalence (4.4%), which is more significant in males and in the middle age group.

HBV screening and vaccination of high risk groups should be strengthened in this area of Upper Egypt.

## REFERENCES

1. Miller FD, Elzalabany MS, Hussani S and Cuadros DF. Epidemiology of hepatitis C virus exposure in Egypt: Opportunities for prevention and evaluation. *World J Hepatol* 2015; 7: 2849-2858.
2. Soliman G, Elzalabany MS, Hassanein T and Miller FD. Mass screening for hepatitis B and C in Southern Upper Egypt. *BMC Public Health* 19, 1326 (2019).
3. El-Zanaty and Associates, ICF International, Egyptian Ministry of Health and Population. Egypt Health Issues Survey 2015. Cairo, Egypt: Egyptian Ministry of Health and Population and ICF International.

## CONTACT INFORMATION

Prof. Dr. Gamal Soliman  
 www.gamalsoliman.com  
 Email: info@gamalsoliman.com  
 Mobile: +2- 01000400021