

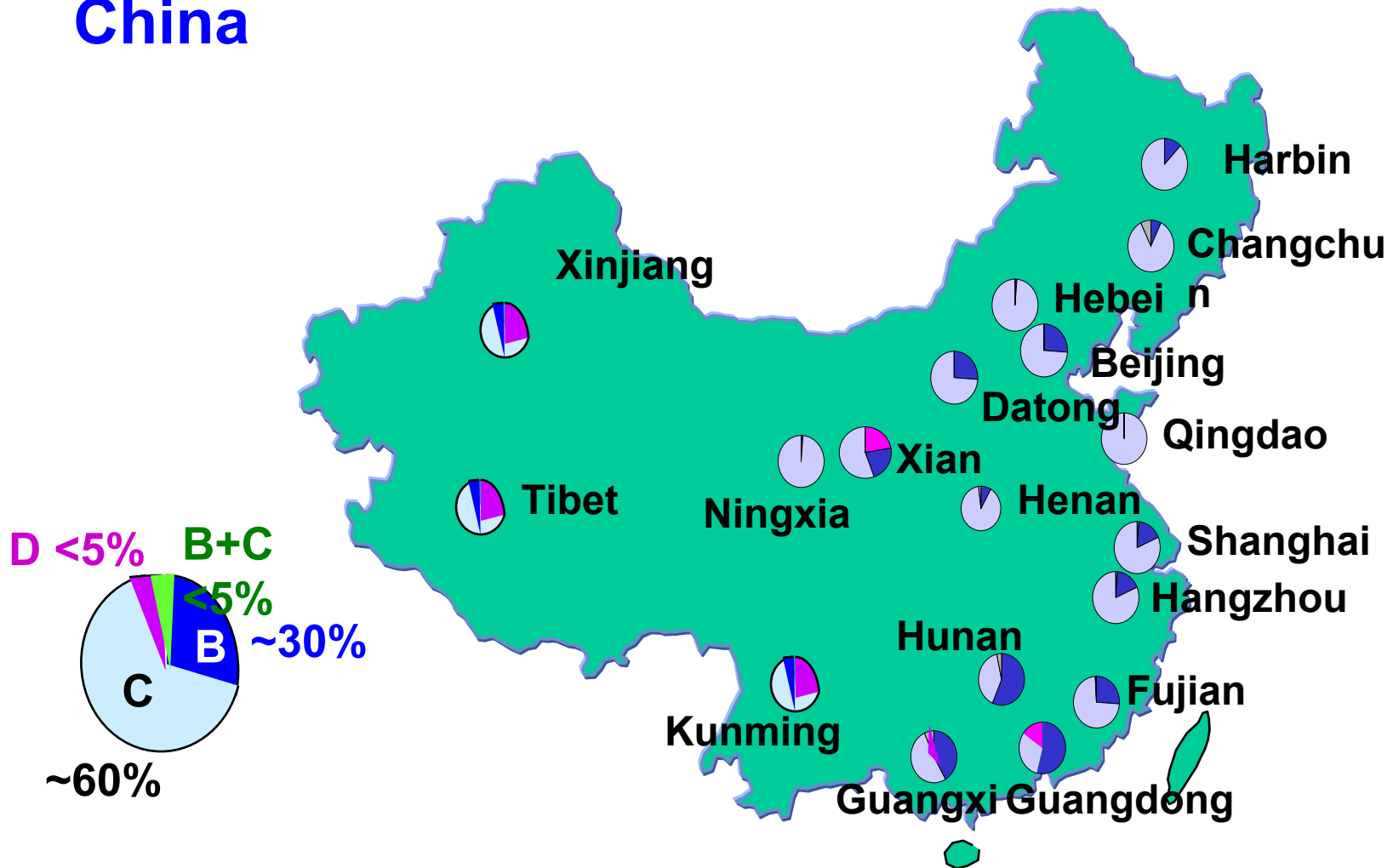
# **HBeAg Negative Hepatitis B and Relationship to Genotyping**

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# Geographic Distribution of HBV Genotypes in China



A total of 524 sera of HBV patients from different parts of China were tested for HBV genotypes by S gene sequencing and INNO-LiPA HBV genotyping kit

# Genotyping distribution among 284 hepatitis B patients

|     | genotyping |                          |          |         | total    |
|-----|------------|--------------------------|----------|---------|----------|
|     | B(%)       | C(%)                     | D型(%)    | B+C(%)  |          |
| AsC | 35(40.22)  | 52(59.77) <sup>a b</sup> | 0        | 0       | 87(100)  |
| CHB | 32(20.38)  | 124(78.98) <sup>a</sup>  | 1(0.64%) | 0       | 157(100) |
| LC  | 6(27.27)   | 16(72.73)                | 0        | 0       | 22(100)  |
| HCC | 1(5.56)    | 16(88.89) <sup>b</sup>   | 0        | 1(5.56) | 18(100)  |

$\chi^2=10.87$ , *a*,  $P<0.001$ ;  $\chi^2=7.41$ , *b*,  $P<0.001$

# **HBeAg negative hepatitis B**

**HBsAg positive more than 6 months**

**HBeAg negative**

**Anti-HBe positive**

**HBV DNA  $10^4 \sim 10^6$  copies/mL**

**Elevated ALT**

**Inflammation in liver tissue**

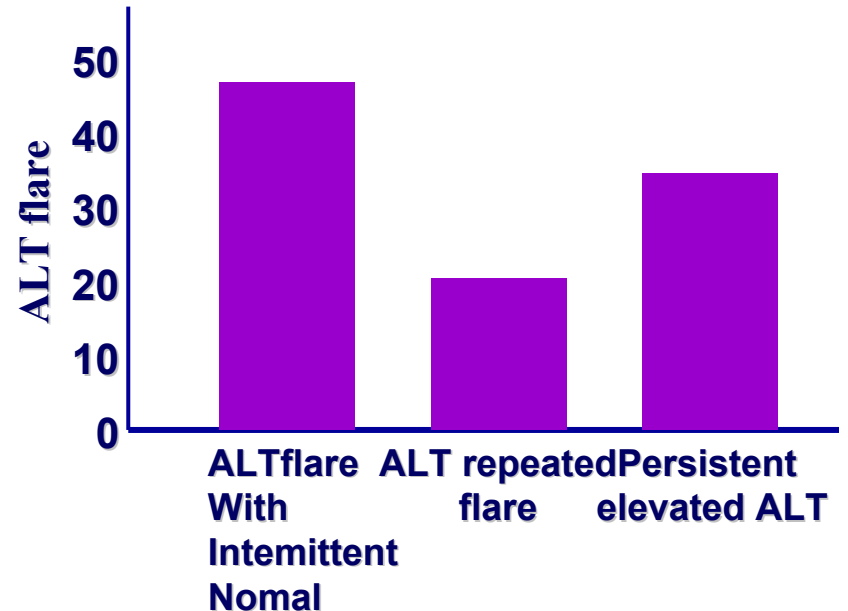
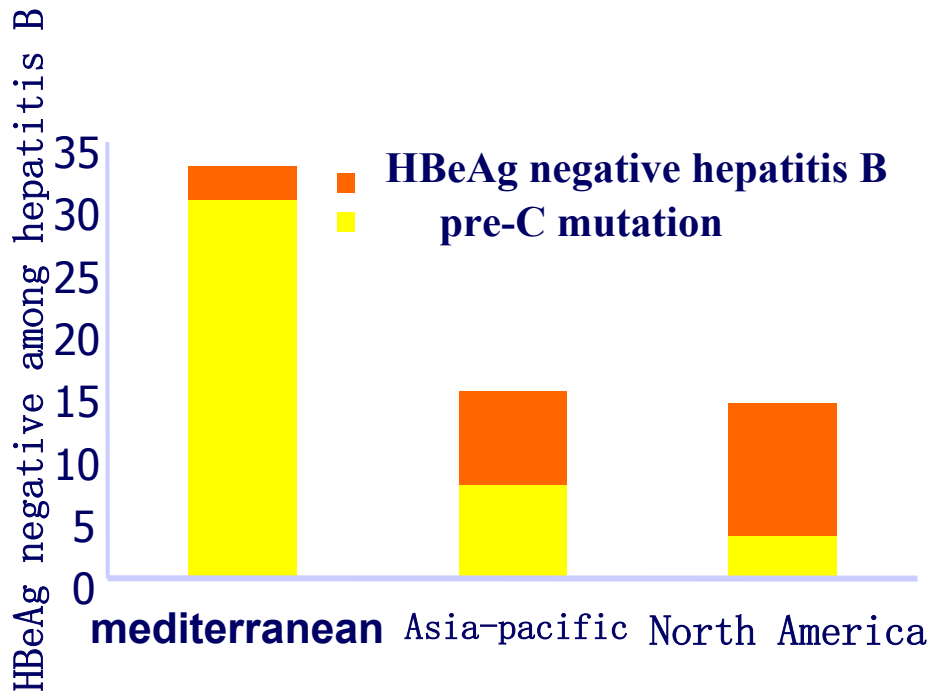
Lok ASF, et al. Gastroenterology, 2001,120:1828-1853

Lok ASF, et al. Hepatology, 2001,34:1225-1241

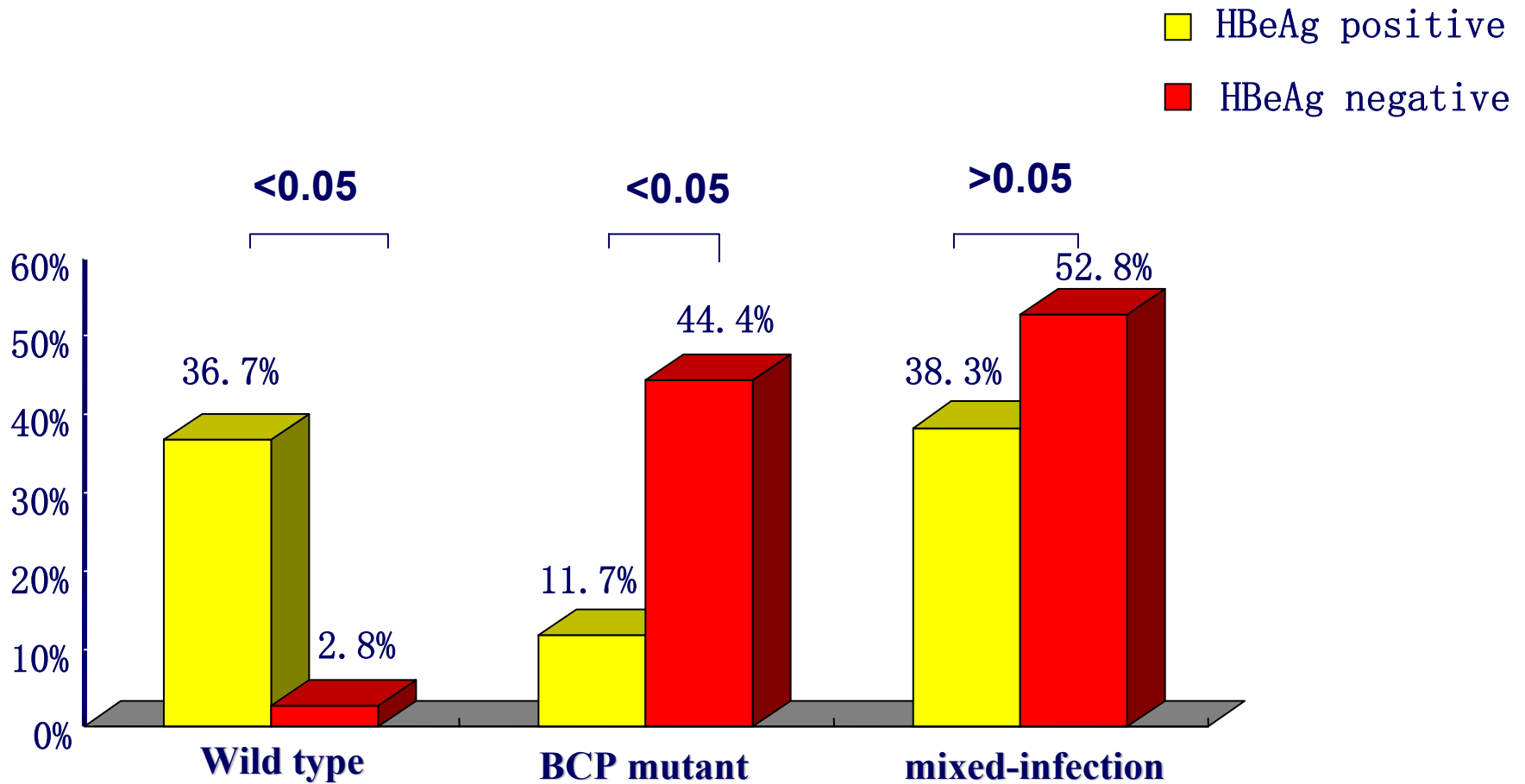
Hadziyannis SJ, et al. Hepatology, 2001,34:617-624

# HBeAg negative hepatitis B

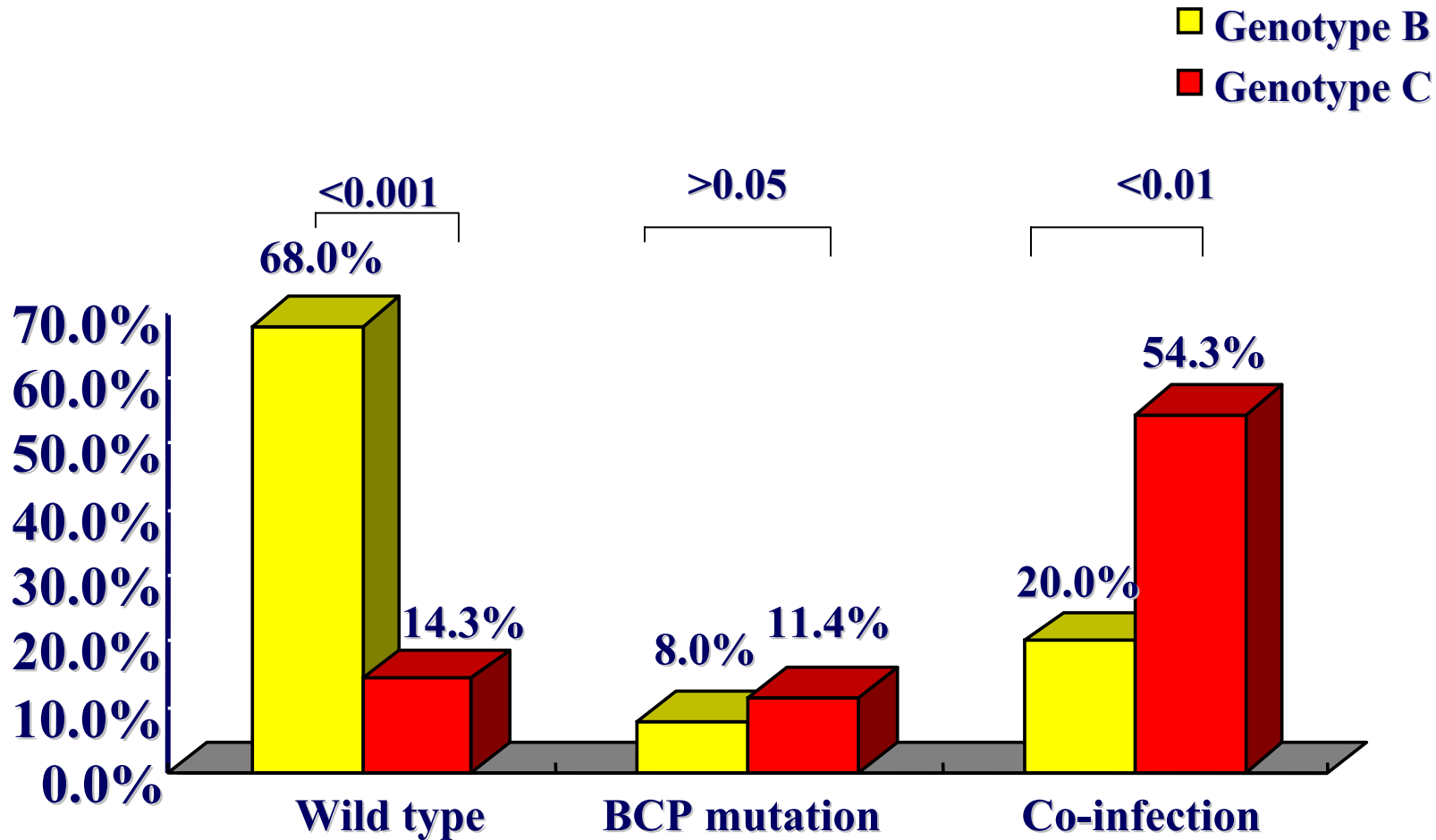
**Increasing incidence around world  
most among male patients age 36–45**



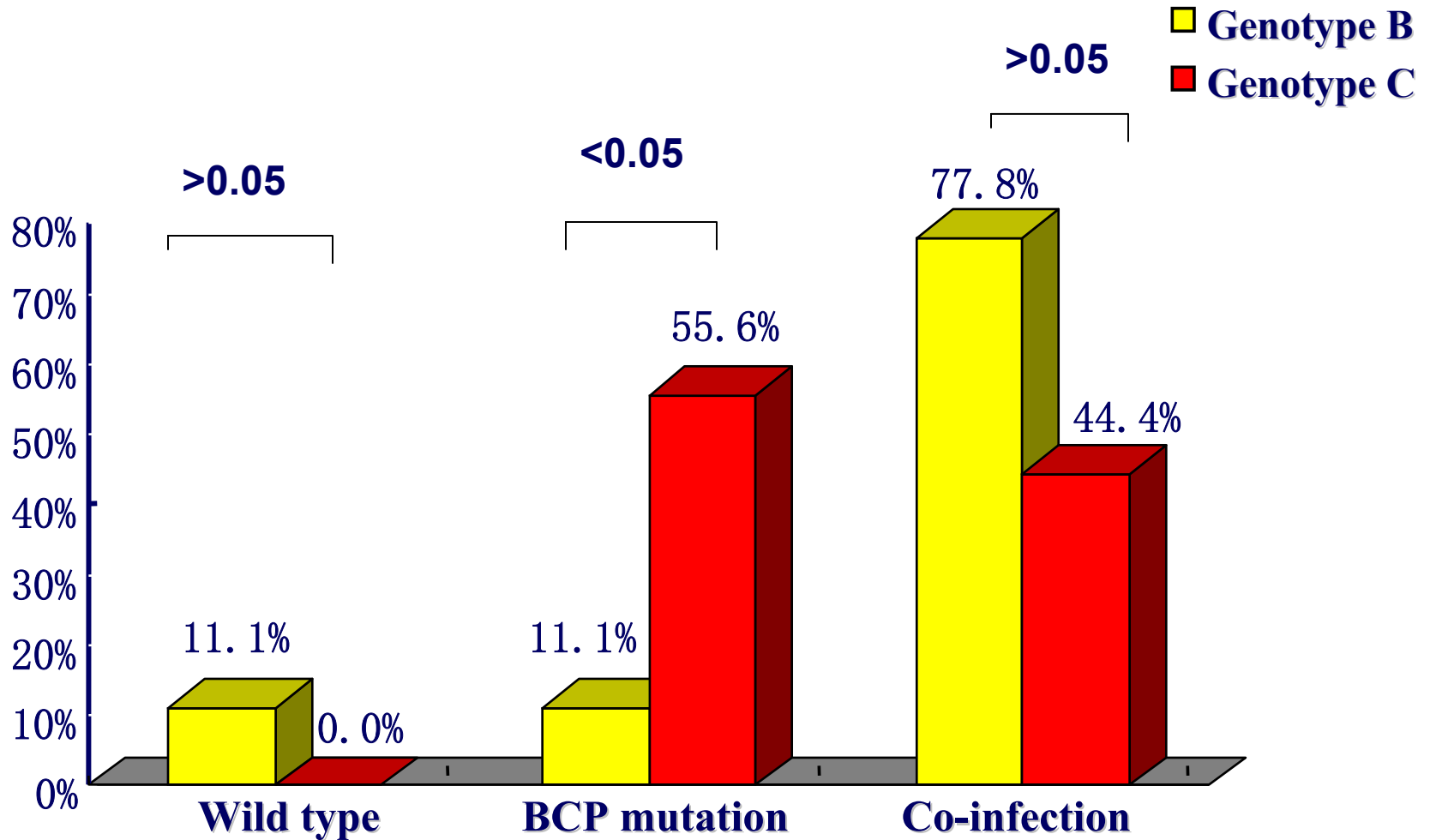
# Higher BCP mutation and mixed infection among HBeAg negative hepatitis B patients



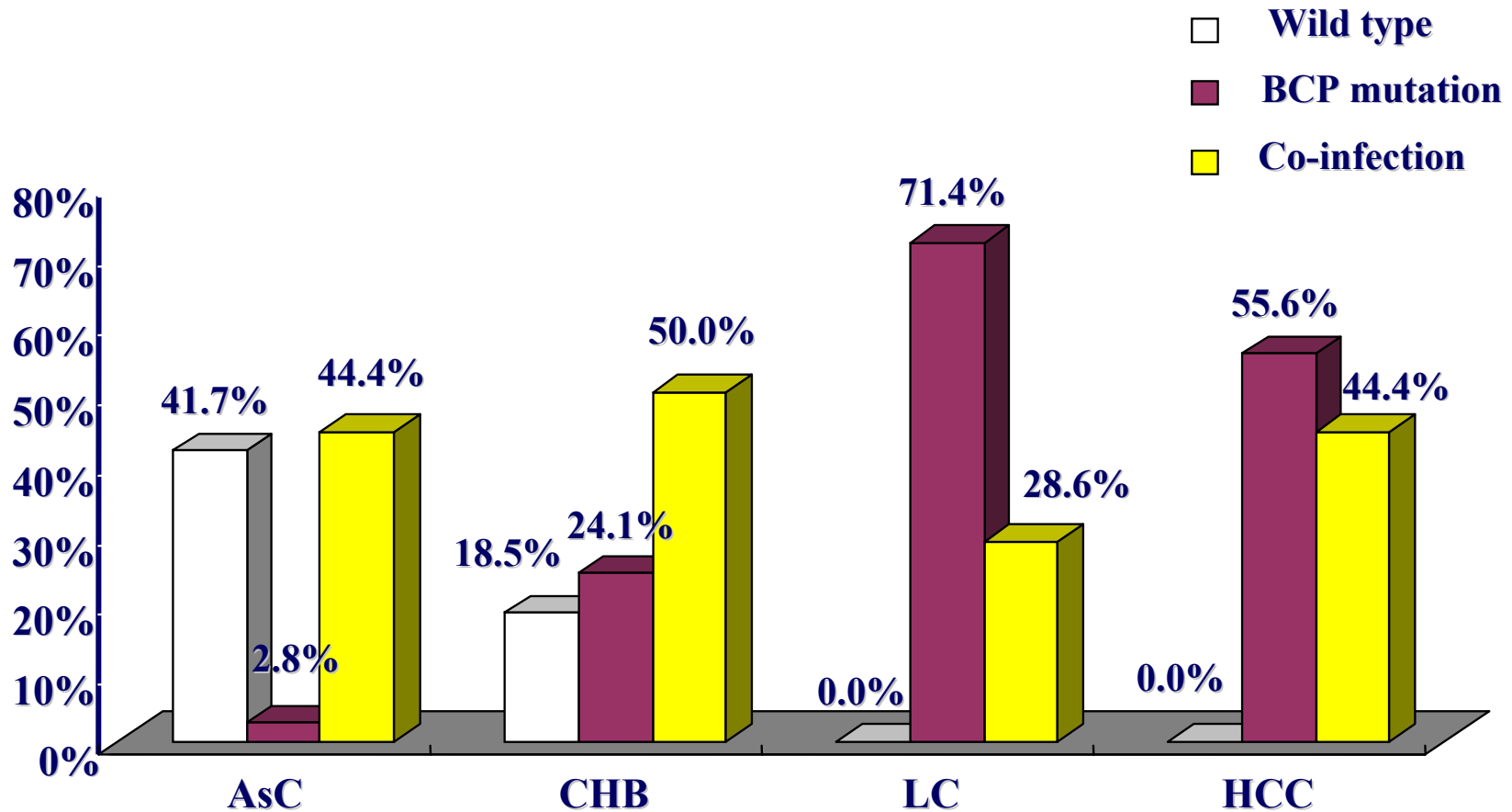
# BCP mutation among HBeAg positive hepatitis B patients and genotype relationship



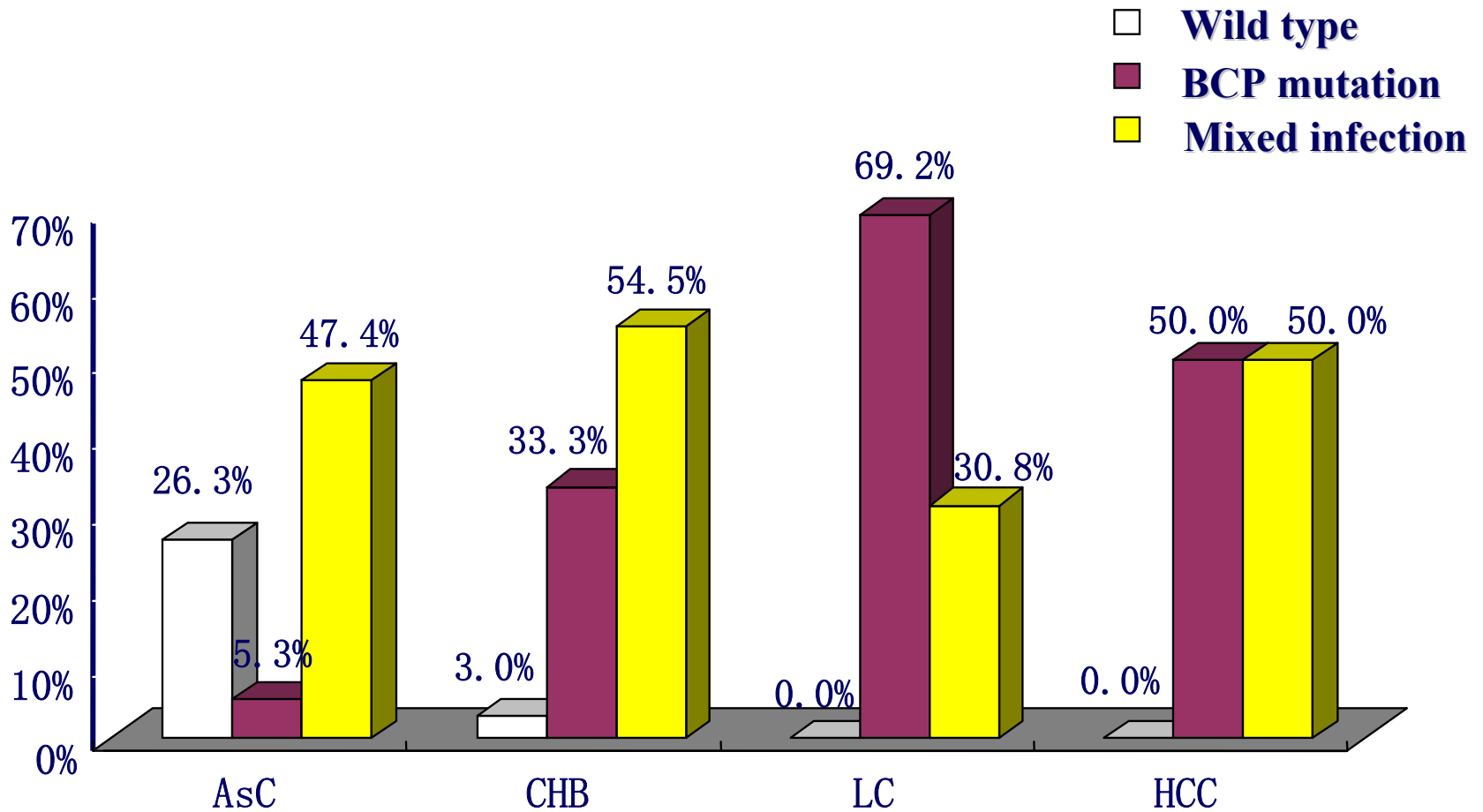
# BCP mutation among HBeAg negative hepatitis B patients and genotype relationship



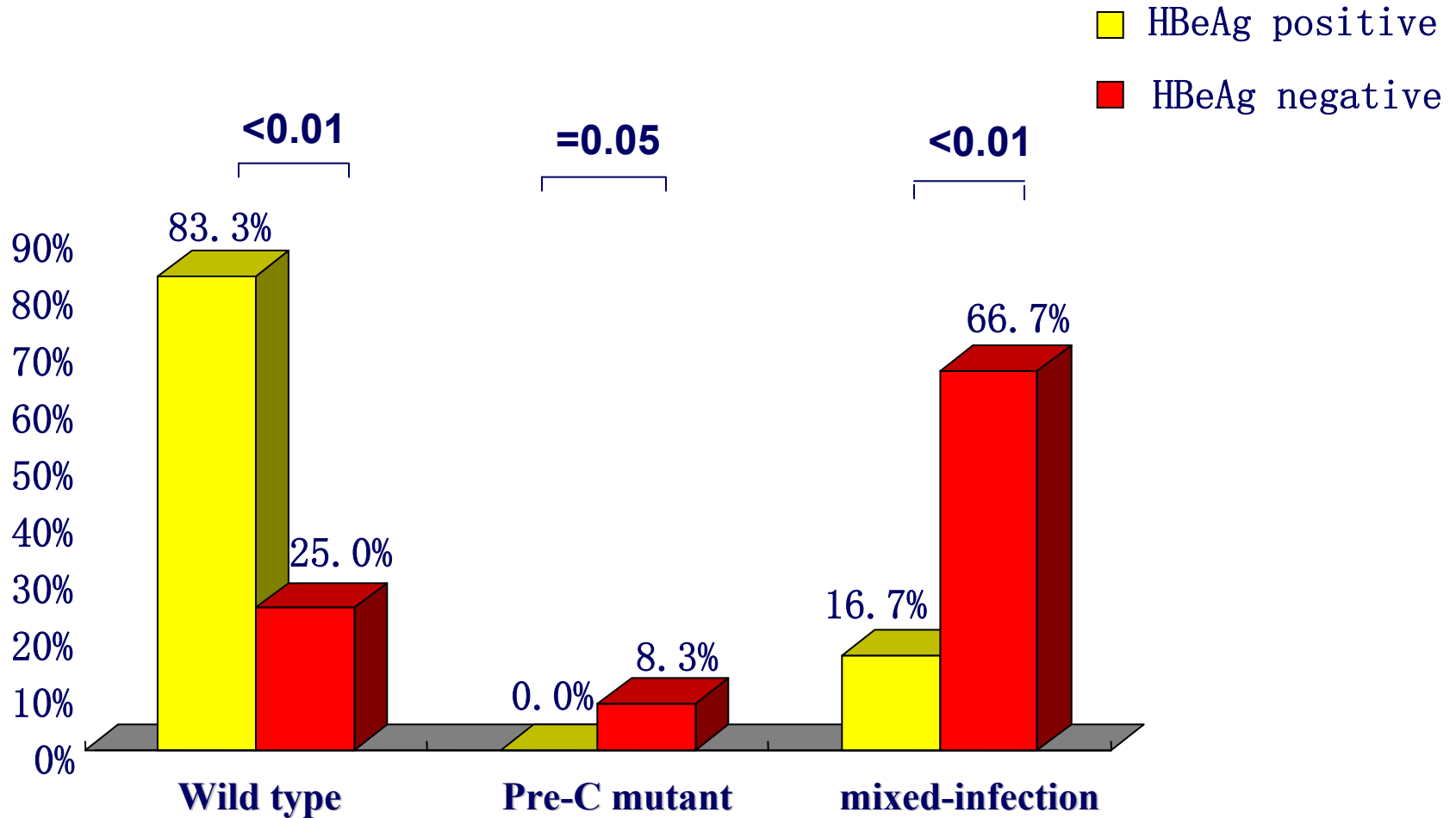
## Higher BCP mutation among end stage liver disease



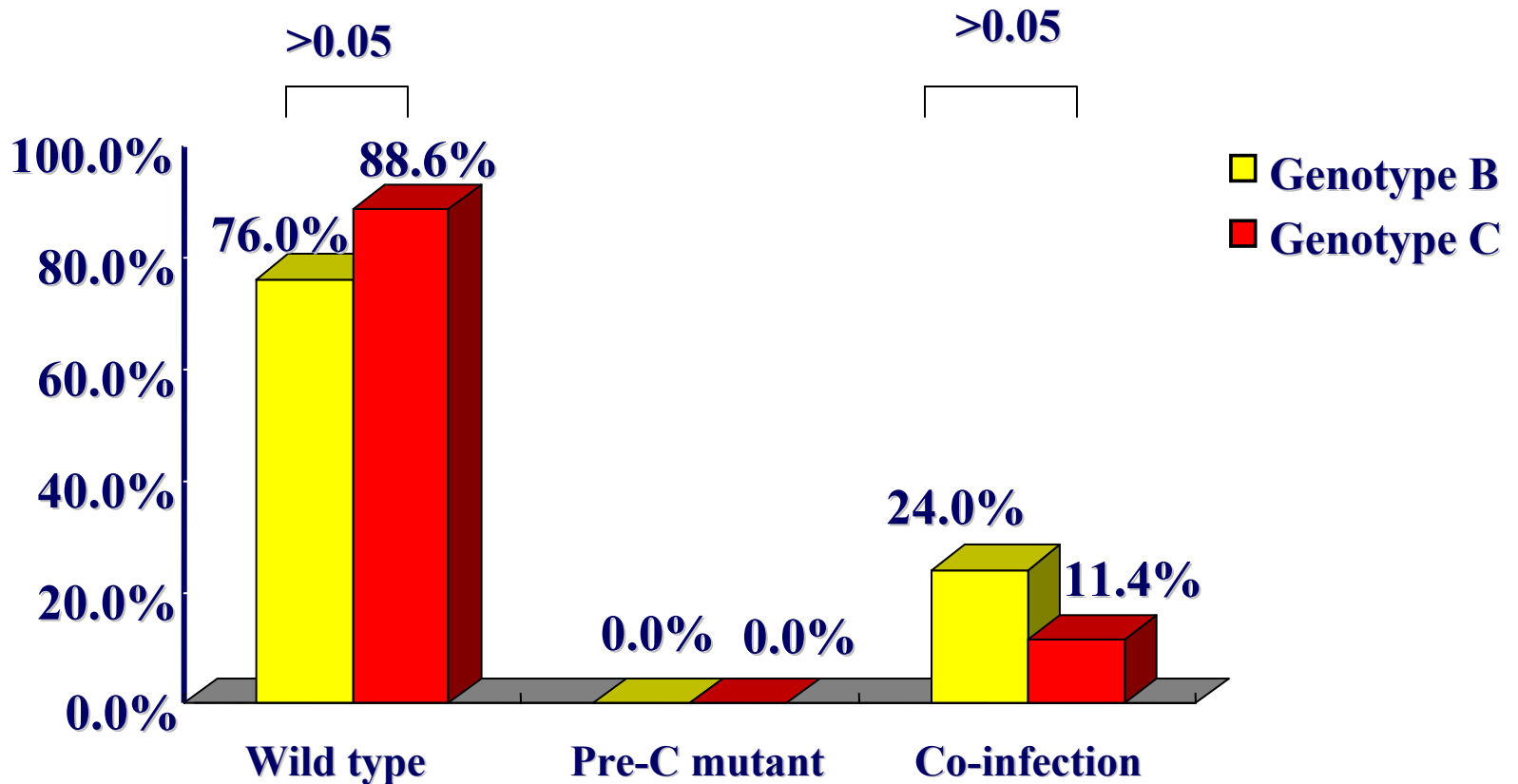
# Clinical feature and BCP mutation among genotype C infection



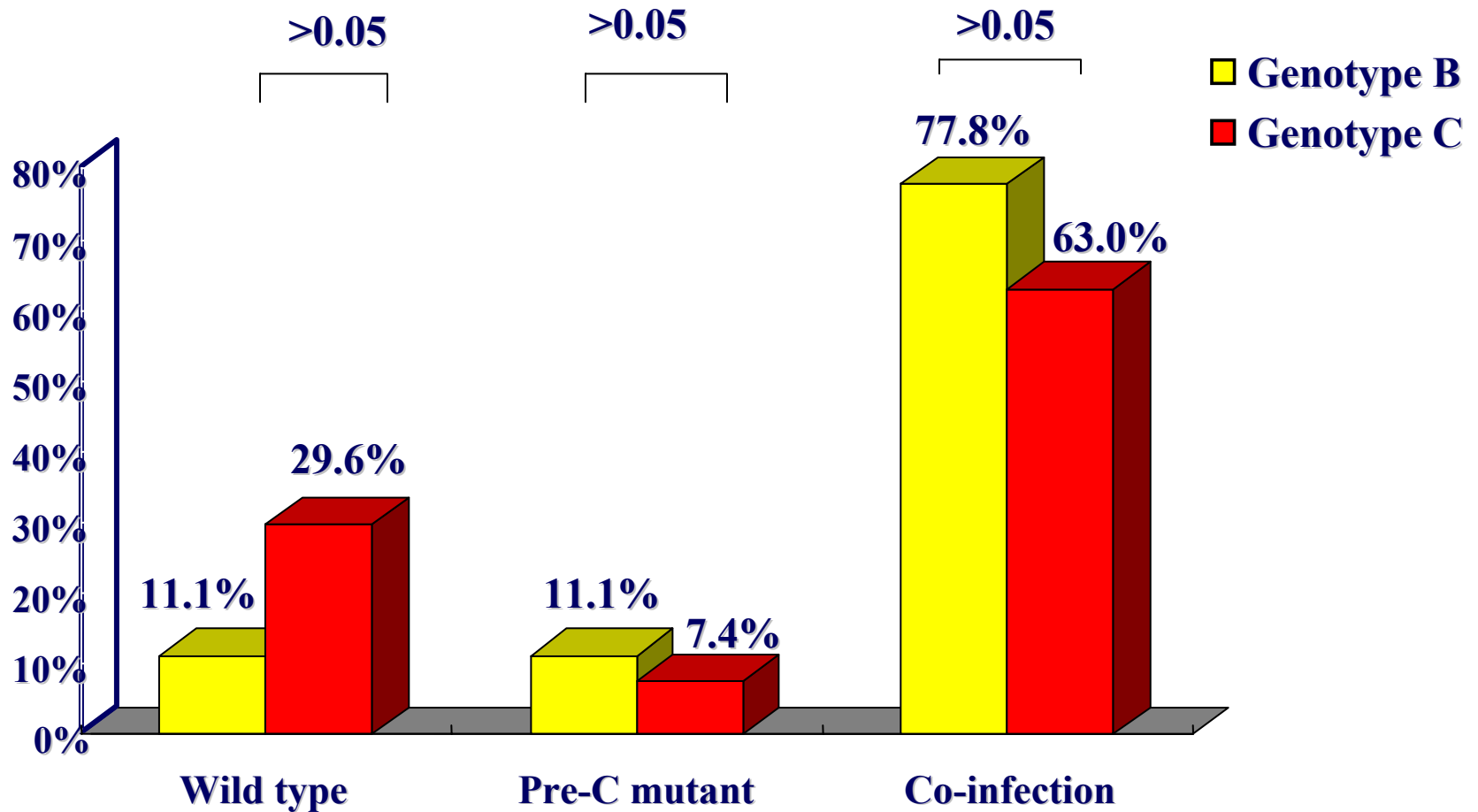
# Higher mixed infection of wild type and pre-C mutant in HBeAg negative hepatitis B patients



# pre-C mutation among HBeAg positive hepatitis B patients and genotype relationship

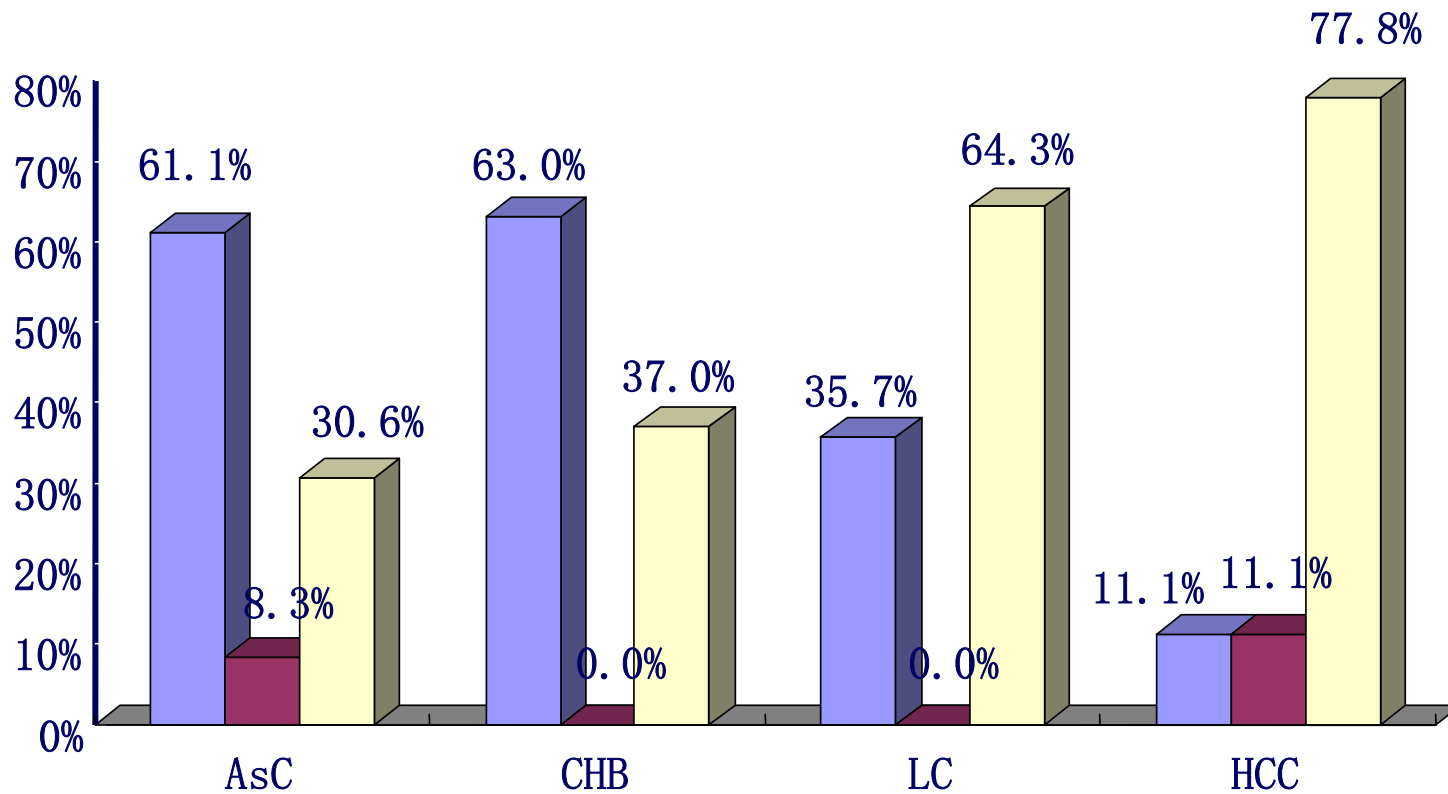


# pre-C mutation among HBeAg negative hepatitis B patients and genotype relationship



# Clinical feature and pre-C mutation among genotype C infection

- Wild type
- pre-C mutation
- Mixed infection



## Clinical Feature between HBeAg Positive and Negative Patients

|                          | HBeAg 阳性 (N = 51) | HBeAg阴性 (N = 160)  | Z      | P     |
|--------------------------|-------------------|--------------------|--------|-------|
| ALT (u/L)                | 67 (14-570)       | 41.5 (10-921)      | -2.24  | 0.025 |
| AST (u/L)                | 90 (17-671)       | 61.5 (17-1504)     | -2.858 | 0.004 |
| TBIL (umol/L)            | 36.8 (8.3-238.2)  | 32.75 (10.1-376.4) | -0.668 | 0.504 |
| ALB (g/L)                | 33 (17-48.7)      | 33.85 (20-50.9)    | -0.151 | 0.880 |
| A/G                      | 1.03 (0.5-1.8)    | 1.02 (0.5-2.1)     | -0.061 | 0.952 |
| CrE (umol/L)             | 73 (15-339)       | 75.5 (34-645.8)    | -0.752 | 0.452 |
| PT (S)                   | 14.25 (10.5-39)   | 14.56 (10.95-36.3) | -1.054 | 0.292 |
| PTA (%)                  | 59 (13-186)       | 57 (12-135.24)     | -0.504 | 0.614 |
| WBC (10 <sup>9</sup> /L) | 4.36 (1.5-16.8)   | 3.5 (0.7-26.1)     | -2.608 | 0.009 |
| HB (g/L)                 | 127 (58-171.1)    | 116 (34-168)       | -2.431 | 0.015 |
| PLT (10 <sup>9</sup> /L) | 73 (18-200)       | 62 (13-288.9)      | -2.241 | 0.025 |

## HBV DNA in cirrhosis patients with and without HBeAg

| HBV DNA<br>copies/mL      | $<10^2$ n(%) | $10^2$ — $10^5$ n(%) | $>10^5$ n(%) |
|---------------------------|--------------|----------------------|--------------|
| HBeAg positive<br>(n=43)  | 2 (4.65)     | 13 (30.23)           | 28 (65.12)   |
| HBeAg negative<br>(n=138) | 37 (26.81)   | 69 (50)              | 32 (23.19)   |
| $\chi^2$                  | 9.524        | 5.17                 | 26.007       |
| <i>P</i>                  | 0.002        | 0.023                | 0.000        |

## **Mortality of cirrhosis patients with and without HBeAg**

|                                | <b>Mortality n(%)</b> | <b>Duration from cirrhosis to death<br/>(months, range)</b> |
|--------------------------------|-----------------------|-------------------------------------------------------------|
| <b>HBeAg positive</b>          | <b>5 (9.8)</b>        | <b>36 (3-60)</b>                                            |
| <b>HBeAg negative</b>          | <b>23 (14.38)</b>     | <b>24 (1-300)</b>                                           |
| <b><math>\chi^2</math> (Z)</b> | <b>0.702</b>          | <b>-0.405</b>                                               |
| <b>P</b>                       | <b>0.402</b>          | <b>0.685</b>                                                |

# Conclusions

**HBeAg negative hepatitis B are mainly due to BCP mutant infection in China**

**Most BCP mutant are found among patients with genotype C HBV infection**

**HBeAg negative hepatitis usually show low viral loads and develop to worse outcome**

# **Acknowledgment**

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