

## The clinical effectiveness of Rice Bran Arabinoxylan Compound (RBAC) in immunotherapy for patients with hepatitis B

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### Abstract:

Hepatitis B virus (HBV) infection is a serious global health problem with devastating consequences of chronic hepatitis, cirrhosis, and hepatocellular carcinoma. More efficacious treatments such as mass immunization programs and safe injection techniques are essential for eliminating HBV infection and reducing global HBV-related morbidity and mortality. Antiviral therapy has been the primary treatment to date, however conventional treatment has undesirable side effects and continuous treatment can lead to resistance. Additionally, antiviral medicines are costly, up to thousands of dollars per year, and are not widely available in many countries, especially in the developing world.

Rice Bran Arabinoxylan Compound (RBAC) is a food supplement that can be combined with conventional treatment to improve disease outcome. The following three cases describe patients with hepatitis B who were treated with a combination of conventional antiviral therapies and RBAC. In these cases, blood samples were taken to measure liver function and immunopotency, and the results were compared with clinical changes and imaging. Improvements were noted in most of the cases. Lastly, some recommendations were provided to enhance the effectiveness of treatment progress.

**Key words:** *Hepatitis B virus infection, antiviral therapy, RBAC*

### Methods

The food supplement RBAC was ingested orally at a dose of 1 pack/24h, combined with antiviral medicines and liver support supplements. The therapeutic effectiveness was assessed by measuring liver enzyme levels, immune parameters and ultrasound imaging.

### Results

#### 1. Case 1 (male, 43 years, hepatitis B virus)

The patient had been diagnosed with hepatitis B in 2000, presenting with symptoms of fatigue, slight fever and dark urine. He underwent treatment with liver support supplements, antiviral therapy (Nucleozid) and RBAC (1 pack/24h). After 18 months of treatment, his biochemical test results improved. The test results and treatment progress are shown in table 1.

Family history: this patient has a younger brother who also has HBeAg (+), and had been treated with antiviral medicine (Tenofovir) and RBAC 1 pack/24h.

Table 1: Case 1 (male, 43 years, viral B hepatitis)

Time of treatment	Clinical symptom	Biochemical tests			Ultrasound test	Viral detection tests				Medicines
		AST (U/l)	ALT (U/l)	$\alpha$ FP (ng/ml)		HBsAg	HBeAg	Anti Hbc	HBV DNA quantity (copies/ml)	

11/2007 (before treatment)	Fatigue, yellow urine, digestion disorder	78	84	(-)	Gallbladder polyps; gallbladder duct: 1.1mm; hyper-echoic texture	(+)	(-)	(+)	6.91x10 <sup>6</sup>	
1 month of treatment		42	60							- Reduced liver enzyme medicine, - Antiviral medicine (Entecavir 0,5mg/24h), - RBAC 1 pack/24h
2 months of treatment		30	36							- Antiviral medicine (Entecavir 0,5mg/24h), - RBAC 1 pack/24h
6 months of treatment		30	28						2.8x10 <sup>4</sup>	- Antiviral medicine (Entecavir 0,5mg/24h), - RBAC 1 pack/24h
12 months of treatment		32	30						1.84x10 <sup>2</sup>	Continuously used 2 medications in 3 months
15 months of treatment		Normal	Normal							
3/4/2010		26.7	24.3	(-)	Small gallbladder polyps		(-)		Unfound	- Stopped using antiviral medicine - RBAC plus 1 pack/24h
5/7/2010		26	18				(-)			Indication for HBV immunization

## 2. Case 2 (male, 17 years old and younger brother, 15 years old)

In February 2004, these patients presented with symptoms of fatigue, weight loss and loss of appetite and were diagnosed with hepatitis B virus.

Family history: their mother also has HBsAg (+)

### - Laboratory tests before treatment:

17 year old male	15 year old male
- Biochemical tests: AST: 210 (UI/l); ALT: 180 (UI/l), $\alpha$ FP (-) - HBeAg (+), HBeAg (+), Anti Hbe (-) - HBV DNA qualitative analysis (+++) - Ultrasound test: hyperechoic texture, enlarged spleen,	- Biochemical tests: AST: 230 (UI/l); ALT: 210 (UI/l), $\alpha$ FP (-) - HBeAg (+), HBeAg (+), Anti Hbe (-) - HBV DNA qualitative analysis (+++) - Ultrasound test: hyperechoic texture, enlarged spleen,

2cm below costal margin	1cm below costal margin
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+ Treatment: liver support supplement, viral inhibitor (Lamivudine 1 tablet/24h) and RBAC (1 pack/24h).

**- Laboratory tests after 6 months of treatment:**

17 year old male	15 year old male
- Liver enzymes: AST: 80 (UI/l); ALT: 42 (UI/l)	- Liver enzymes: AST: 78 (UI/l) ; ALT: 46(UI/l)
- HBeAg (+)	- HBeAg (+)
- HBV DNA qualitative analysis: (+)	- HBV DNA qualitative analysis: (+)
- Ultrasound test: hyperechoic texture, splenomegaly	- Ultrasound test: hyperechoic texture, splenomegaly

+ Continuous treatment: liver support supplement, viral inhibitor (Lamivudine 1 tablet/24h) and RBAC (1 pack/24).

**- Laboratory tests after 12 months of treatment:**

17 year old male	15 year old male
- Liver enzymes: AST: 28 (UI/l); ALT: 40 (UI/l)	- Liver enzymes: AST: 30 (UI/l); ALT: 42 (UI/l)
- HBeAg (+)	- HBeAg (+)
- HBV DNA qualitative analysis: (+)	- HBV DNA qualitative analysis: (+)
- Ultrasound test: hyperechoic texture, splenomegaly	- Ultrasound test: hyperechoic texture, splenomegaly

+ Continuous treatment: liver support supplement, viral inhibitor (Lamivudine 1 tablet/24h), and RBAC (1 pack/24h).

**- Laboratory tests after 24 months of treatment:**

17 year old male	15 year old male
- Liver enzymes: AST: 30 (UI/l); ALT: 26 (UI/l)	- Liver enzymes: AST: 28 (UI/l); ALT: 24(UI/l)
- HBeAg (+)	- HBeAg (-)
- HBV DNA qualitative analysis (+)	- HBV DNA qualitative analysis (±)
- Ultrasound test: enlarged spleen, 1cm below costal margin	- Ultrasound test: normal spleen

+ Discontinued drug treatment, continued only with herbal medicine (Chanca Piedra)

**- February, 2010:**

17 year old male	15 year old male
- Weight loss, loss of appetite	- Liver enzymes: AST: 28 (UI/l); ALT: 20(UI/l)
- Liver enzymes: AST: 40 (UI/l); ALT: 86 (UI/l)	
- HBeAg (+), HBeAg quantity: 152.800 UI/l	
- HBV DNA quantity: 10 <sup>6</sup> copies/ml	
- Ultrasound test: hyperechoic texture, enlarged spleen below costal margin	
Treatment: Reduced liver enzyme medicine, viral inhibitor (Entecavir 0.5g/24h), RBAC (1 pack/24h)	Discontinue all medication

**- 8/7/2010:**

17 year old male	15 year old male
- Liver enzymes: AST: 32 (UI/l); ALT: 30 (UI/l)	- Liver enzymes: AST: 26 (UI/l); ALT: 18 (UI/l)

- HBeAg (-) - HBV DNA quantity: 10 <sup>4</sup> copies/ml - Ultrasound test: enlarged spleen below costal margin	- HBeAg (-) - HBV DNA quantity: undetected - HBeAg qualitative analysis: (-) - Ultrasound test: normal
	- Indication for HBV immunization

- Patients continued herbal medicine (Chanca Piedra) during six years of treatment.

### 3. Case 3 (female, 23 years old, hepatitis B virus)

The patient was diagnosed with hepatitis B virus one month after having a baby, presenting with symptoms of fatigue and loss of appetite. She also has a brother with HBsAg (+). She underwent treatment with liver support supplements, RBAC (1000 x 1 pack/24h) and continued breast feeding. The test results and treatment progress are shown in table 2.

Table 2: Case 3 (female, 23 years, hepatitis B virus)

Time of treatment	Clinical symptoms	Biochemical tests			Ultrasound test	Viral detection tests				Medicines
		AST (U/l)	ALT (U/l)	αFP (ng/ml)		HBsAg	HBeAg	Anti Hb c	HBV DNA quantity (copies/ml)	
3/2006 (Before treatment)	Fatigue, loss of appetite	100	120	(-)	Hyper-echoic texture	(+)	(+)	(-)	10 <sup>5</sup>	- Reduce liver enzyme medicine, - RBAC x 1 pack/24h - Keep breast feeding
2 months of treatment		60	38							- RBAC x 1 pack/24h - Keep breast feeding -Appropriate regime and resting
12/2006 9 months of treatment		32	28				(-)	(+)		- Antiviral medicine (Entecavir 0,5mg/24h), - RBAC x 1 pack/24h
5/2007 14 months of treatment		Normal	Normal				(-)		10 <sup>3</sup>	- RBAC x 1 pack/24h
9/2009		Normal	Normal				(-)	(+)	Un-detected	- Having 2 <sup>nd</sup> baby - RBAC x 1 pack/24h during pregnancy

### **Conclusion and recommendations**

The safety of RBAC is easily understood because it is extracted from rice bran. The current clinical cases further confirm the safety of RBAC. RBAC is used for immunotherapy to prevent a reduction in physical strength and appetite. The patients also reported, "When I take it, I feel better".

The combination of RBAC and antiviral medicines should have the maximum effect on hepatitis B patients who fall into the following criteria:

- + Patients who have high levels of liver enzymes and HBV DNA quantities.
- + Patients who are compliant with their medication schedule.

The treatment is more effective on HBV patients who are HBeAg (+). Conversely, it is more difficult to treat HBV patients who are HBeAg (-); therefore taking 2 packs/24h is recommended for these patients.

### **References:**

1. D. Lavanchy (2004). Hepatitis B virus epidemiology, disease burden, treatment, and current and emerging prevention and control measures. *Journal of Viral Hepatitis* 11(2): 97-10.
2. Lok AS, Hussain M, Cursano C et al (2000). Evolution of hepatitis B virus polymerase gene mutations in hepatitis B e antigen negative patients receiving lamivudine therapy. *Hepatology* 32(5): 1145–1153.
3. Lok AS, Zoulim F, Locarmini S et al (2007). Antiviral drug-resistant HBV standardization of nomenclature and assays and recommendations for management. *Hepatology* 46(1): 254-265.
4. Ghoneum M (1998). Enhancement of Human Natural Killer Cell activity by modified Arabinoxylan from Rice Bran (MGN-3). *INT.Immunotherapy* 14(2): 89-99.
5. Yeo W, Johnson P J (2006). Diagnosis, prevention and management of hepatitis B virus reactivation during anticancer therapy. *Hepatology* 43(2): 209-220.