

The Effectiveness of *Coriolus Versicolor* in the Treatment of Secondary Phenomena Associated with HIV.

G.ROTOLO

PZZA San Theodoro, 27100, Pavia, Italy

G.Rotolo, The effectiveness of *Coriolus versicolor* in the treatment of secondary phenomena associated with HIV.-Poster 8.4-Submitted to the 10th International Congress of Mucosal Immunology, June 27-July 1, 1999. Amsterdam, the Netherlands.

Background: Immune enhancement properties of select plants and mushrooms have been studied by Japanese researchers in the 1960's, with the majority of mycological research focused on extracts derived from both *Ganoderma lucidum* (reishi) and *Lentinula edodes* (shiitake).

In the late 1960's, a hot water extract of *Lentinula edodes* (Berk)Sing. edible mushroom, completely inhibited the growth of sarcoma 180 implanted subcutaneously in ICR mice.

From the extract, Professor Goro Chihara isolated and purified a polysaccharide, which showed marked antitumour activity, and named the polysaccharide Lentinan (1). However, Lentinan was proven to be too toxic for long term clinical use (2).

It was the search for a mycological extract that had less toxicity and fewer side effects than Lentinan that led researchers at Kureha Chemical Industry Company to focus on the effectiveness of the oral administration of Polyporaceae (one of the Basidiomycetes) on stomach cancer patients.

Kureha screened over 200 species of the fruit bodies of the Basidiomycetes for their antitumor activity against various tumour cells, including sarcoma 180 and found several promising Polyporaceae strains (3). Among these strains *Coriolus versicolor* (Fr.) Quel (kawaratake), was considered to be the most suitable

for further fractionation due to its high antitumour activity and stability during serial cultivation (4)

Extracts of cultured mycelia of *Coriolus versicolor* demonstrated antitumour activity comparable to that of the fruitbody. In 1971, the active principle was precipitated from extracts of cultured hyphae of *Coriolus versicolor* (Fr.) Quel (CM-101 strain) with saturated ammonium sulfate, desalted and named PSK or Krestin (5). PSK has been reported to induce host-mediated antitumor activity (6).

1. "Medical Aspects of Lentinan Isolated From *Lentinus Edodes* (Berk) Sing"-Goro Chihara, Biotechnology Research Centre, Teikyo University, Nogawa 907, Miyamae-ku, Kawasaki 213, Japan. Chapter 27-Mushroom Biology and Mushroom Products-Precedings of the Second International Conference-University Park, Pennsylvania June 9-12, 1996. Edited by D.J. Royce.
2. Translation of "Cancer Immunotherapy 1977"-Takeo Mori, Tadaaki Sakai, Ichiji Itoh, Tokyo Metropolitan Komagome Hospital, Published by Life Science August 5th, 1977.
3. "Diverse Biological Activity of PSK (Krestin), A Protein-Bound Polysaccharide from *Coriolus versicolor* (Fr.) Quel-Hiroshi Sakagami and Minoru Takeda-First Department of Biochemistry, School of Medicine, Showa University, 1-5-8 Hatanodai, Shinagawa-ku, Tokyo 142 Japan, Page 237 Chapter 25-Mushroom Biology and Mushroom Products-Precedings of the Second International Conference-University Park, Pennsylvania June 9-12, 1996, Edited by D.J. Royce.
4. Ibid Page 237
5. Ibid Page 237
6. Ibid Page 237
- 7.

Aim of Study

To assess the efficacy of non-fractionalized *Coriolus versicolor* supplementation in HIV+ patients. The principal parameters being white blood count (WBC) and quality of life assessment related to fatigue.

Study Design

-Open label study in Italy in three (3) patients.

-Inclusion Criteria

- Patients over 35 years
- HIV+
- White Blood Count (WBC) inferior to 4000.

-Exclusion Criteria

None

-Outcome Measures

Measurements of white blood count (WBC) were taken prior to *Coriolus* supplementation, 15 days after initial supplementation and 45 days after initial supplementation.

Patients were interviewed during the *Coriolus* supplementation period, in order to assess changes in perceived quality of life, with reference to fatigue.

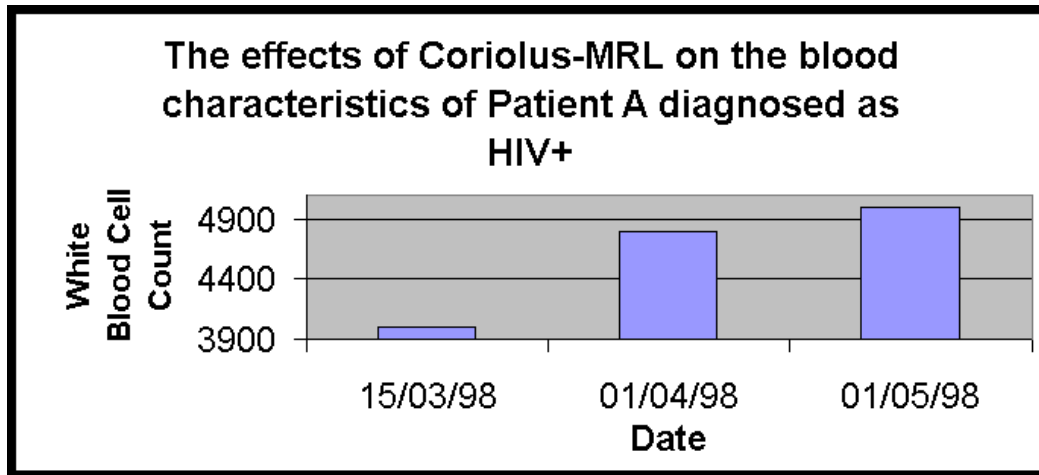
-Supplementation Scheduling

Dosages commenced at 3 grams (6 tablets x 500 mg) per day and were maintained for 15 days and then decreased to 1.5 grams (3 tablets x 500 mg). The 1.5 gram supplementation was maintained for 30 days.

RESULTS

1). After 15 days of 3.0 grams (per day) of *Coriolus* supplementation, there was an average increase of 27% in WBC, in all three (3) patients (Table 1).

Table 1



WBC WBC

Before 14 Days After +/- %

Patient A-Male 4000 4800 +800 20.0%

(37 years old)

Patient B-Female 3100 4150 +1050 33.9%

(38 years old)

Patient D-Male 3150 4000 +850 27.0%

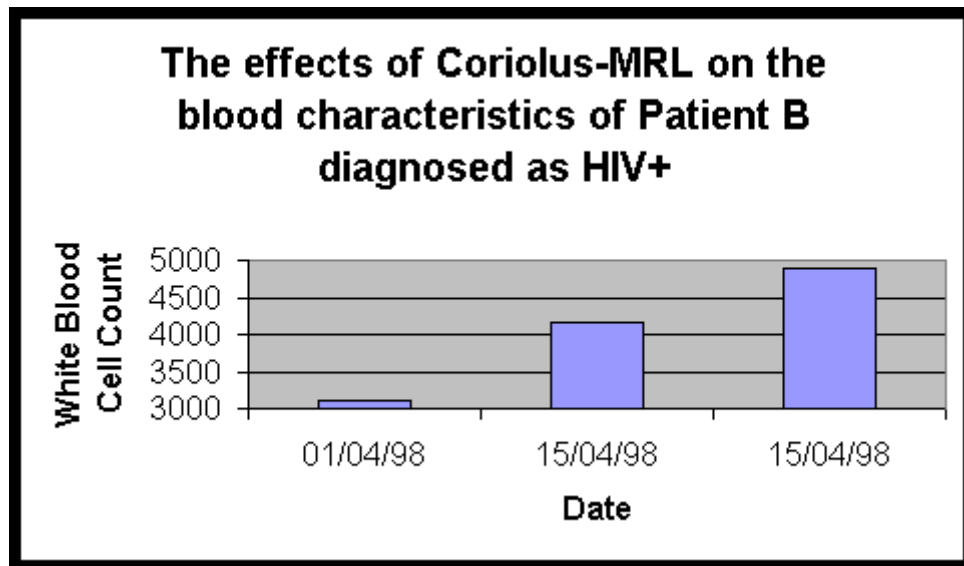
(41 years old)

Average 27.0%

Table 1-Italy-G. Rotolo-Investigating the white blood cell characteristics of the three patients, it was noted that there was an average increase in white blood cell count of 27% within the first fifteen (15) days of 3.0 grams of *Coriolus versicolor* supplementation.

2). With a 50% reduction in supplementation (from 3.0 grams to 1.5 grams per day), after thirty (30) days, WBC increased on average a further 14.1% (Table 2).

Table 2



WBC WBC

14 Days After 30 Days After +/- %

Patient A 4800 5000 +200 4.2%

Patient B 4150 4900 +750 18.1%

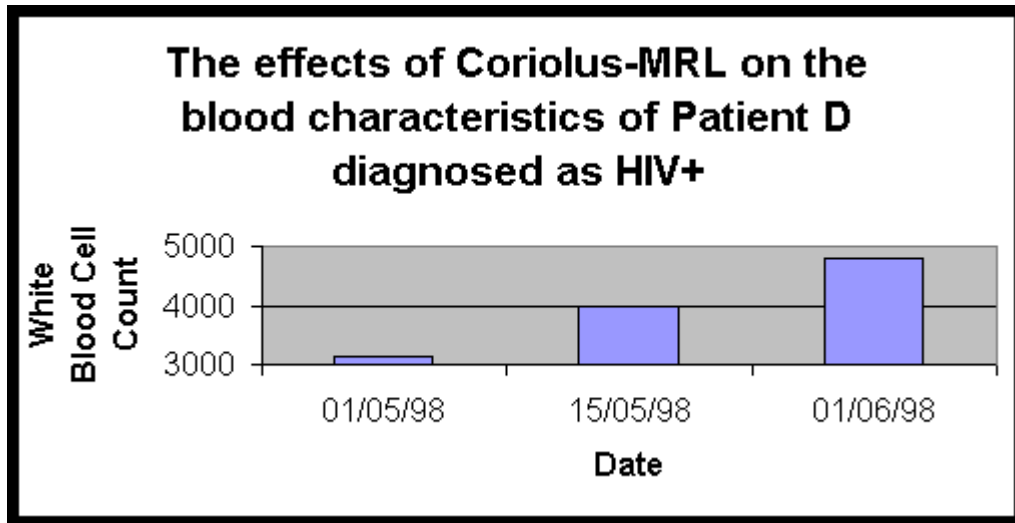
Patient D 4000 4800 +800 20.0%

Average 14.1%

Table 2. Italy-G.Rotolo. When the Coriolus supplementation was reduced from 3.0 grams to 1.5 grams per day, after 30 days at the reduced supplementation, the average increase in white blood count was 14.1%.

3). Over the 45 day initial *Coriolus* supplementation period, with the two phases in supplementation, WBC increased by 45.2% (Table 3).

Table 3



WBC WBC

Before After +/- %

Patient A 4000 5000 +1000 25.0%

Patient B 3100 4900 +1800 58.1%

Patient D 3150 4800 +1650 52.4%

Average 45.2%

Table 3-Italy-G.Rotolo-After 45 days of Coriolus supplementation (Days 1-15 at 3.0 grams per day and from days 16 to 45 at 1.5 grams per day, the total percentage increase in white blood count (WBC) was 45.2%.

4). Patients commented on increased energy and improved quality of life during the course of Coriolus supplementation.

DISCUSSION

Overall patients expressed a remarkable feeling of increased energy while taking *Coriolus* supplementation as compared to not taking *Coriolus* supplementation. This observation included the significant increases in WBC.

Of further note, with a 50% reduction in supplementation (3.0 grams per day to 1.5 grams per day), after 30 days, WBC continued to increase by 14.1%, indicating that *Coriolus* supplementation nutrition may play a role in host mediated immune response.

Taking into account the limitations of such a small sample size, we have a curiosity. Further research is required to confirm that *Coriolus versicolor* supplementation is an effective adjuvant nutrition therapy for HIV+ patients. In this regard we invite other researchers to explore the hypothesis that *Coriolus versicolor* plays a role in initiating host-mediated response.

CONCLUSION

The results of this open label study indicate that *Coriolus versicolor* supplementation may enhance white blood count (WBC) in HIV+ patients. Further research is required to explore this curiosity in greater detail.