RINGKASAN

Tripanosomiasis pada hewan di Indonesia masih merupakan ancaman laten dan diwaspadai secara ketat sebagaimana Undang Undang No. 6 1967. Penelitian pencegahan dan pemberantasan penyakit tersebut terus dikembangkan, selaras makin diketahuinya ultrastruktur parasit (*antigenic variation glycoproteins*). Fenomena tersebut menyebabkan makin dipertanyakan kemampuan antitripanosoma yang selama ini digunakan, salah satunya adalah suramin.

Untuk menilai kembali hal tersebut dilakukan uji klinik (modifikasi fase IV), secara *double blind*. Dalam uji ini terdiri dari III kelompok. I. Satu kelompok diinfeksi tripanosoma tanpa pengobatan (kontrol sakit), II. Satu kelompok tanpa infeksi tanpa pengobatan (kontrol sehat), III. Satu kelompok terinfeksi dengan pengobatan. Pengamatan respon farmakologi-terapi dilakukan selaras pengamatan ketersediaan hayati obat vs. penurunan derajat parasitemia. Untuk mengetahui keberhasilan eliminasi parasit, dilakukan uji biologis. Subyek penelitian sebelum perlakuan dilakukan pemeriksaan kesehatan disertai beberapa pemeriksaan hematologi dan kimia klinik, demikian pula uji keganasan parasit.

Subyek rattus strain wistar yang diinfeksi T. evansi isolat Bangkalan ($1x10^5$ parasit/ml) disuntik suramin 10 mg/kg bb tunggal (i.v). Kontrol sakit digunakan tikus terinfeksi dengan penyuntikan plasebo. Kontrol sehat digunakan tikus tanpa infeksi maupun pengobatan, akan tetapi dilakukan penyuntikan stabilat. Analisis derajat parasitemia dilakukan secara ulas tebal. Analisis kadar obat dalam plasma, dilakukan secara kromatografi cair kinerja tinggi fase terbalik (fase mobil metanol-air 49:51 pH 6,8 mengandung bufer

serta pasangan ion), dengan standart internal 2-naftol.

Hasil penelitian menunjukkan :

Pada kelompok kontrol sakit (I), hanya tahan selama 6 hari. Kenaikan suhu dan pulsus diiringi kenaikan derajat parasitemia selaras dengan timbulnya penurunan kondisi (aktivitas fisik, kualitas bulu dan turgor). Penurunan PCV tidak disertai gejala anemi.

Pada kelompok kontrol sehat (II), ditemui keadaan sehat hingga akhir pengamatan (pasca uji biologis).

Pada kelompok uji (III), hasil pengamatan ulas tebal menunjukkan suramin mampu mengeliminasi parasit ($\pm$ 36-48 jam pasca terapi). Eliminasi tersebut disertai peningkatan kondisi tubuh diiringi penurunan suhu serta kisaran normal pulsus. Peningkatan PCV terjadi setelah $\pm$ 2 hari pasca pengobatan, selaras dengan penurunan gejala anemi. Naik turunnya PCV diakibatkan oleh parasitemia serta pengambilan cuplikan darah. Hasil penghitungan parameter kinetik menggunakan program perangkat lunak *stripe* dengan asumsi suramin mengikuti model kompartemen dua terbuka. Diperoleh harga $T_{1/2}$ fase distribusi 9,936-24,902 jam, $T_{1/2}$ fase eliminasi 61,368-178,067 jam. $AUC_{0-\infty}$ 848,52-1850,47 ug.jam/ml. MRT 81,76-188,18 jam. VD_{ss} 173,433-491,216 ml/kg. Cl 1,297-2,913 ml/jam.Kg^{-1}. Dari hasil penelitian menunjukkan bahwa kadar suramin (dari lamanya MRT, besarnya $AUC_{0-\infty}$ dan Vd_{ss}) mempengaruhi kecepatan eliminasi parasit. Hasil uji biologis menunjukkan bahwa eliminasi parasit telah terjadi dengan sempurna.

Untuk mengamati kemampuan terhadap subyek lain, perlu dilakukan penelitian sejenis pada hewan percobaan lain atau hewan lapangan.

SUMMARY

Cases of trypanosomes in animals of Indonesia constitute a latent threat to animal husbandry and therefore merits intervention. This disease is also mentioned in Ordinance No. 6/1967. Research in the prevention and eradication of trypanosomes is continuosly being conducted since the discovery of the parasite ultrastructures. These phenomena have invited broader questions about the effectiveness of the present application of the anti-trypanosomes drug called suramin and other drugs.

To re-evaluate the effectiveness of suramin, the double-blind clinical trial modification (Phase IV) has been used. The trial consists of three group. One group infected with trypanosomes did not get any treatment (control I). One healthly group (not infected) did not get any treatment (control II). One group infected with trypanosome was treated with suramin. Post-therapeutic observations were pharmacotherapy response and kinetic parameters versus the fate of the parasites. The proceeding biological trial method was applied to observation of the parasites eliminated. All of the subjects had been given health examinations before treatment, including haematological and clinical chemistry exams. The illnatured characteristics of trypanosomes were also examined.

The subjects used in the trials were the rattus wistar's strain infected by the T. evansi Bangkalan's strain (1×10^5 parasites/ml). The treatment of the infected subjects was suramin 10 mg/kg body weight. The blood smear examination method was used for

parasitaemia analysis.

The method of analysis of the plasma drug concentration was the ion pairing reverse phase High Performace Liquid Chromatography together with 2-naftol as an internal standard.

The results of the trials were as follows :

I. The illness controlled groups died 6 days post inoculation. During the development of infection, the subjects had fever accompanied by elevated body temperature and increased pulse rate. This control group appeared very lethargic and showed poor elasticity turgor and tousled hair. The decreas of PCV parameters was not correlated with signs of anemia.

II. Health control groups remained healthy up to post biological trial time.

III. The trial groups eliminated parasites within 36-48 hours post therapeutic treatment ; body temperature and pulse rate return to normal levels. The PCV parameters increased starting on Day 2 post therapy while signs of anemia disappeared. The fluctuation of PCV characters were consequences of the parasite multiplication and blood sampling. The measurement of kinetic parameters were $T1/2_{\alpha}$ 9.94-24.9 hours; $T1/2\beta$ 61.37-178.1 hours; AUC 848.5-1850.5 ug.hours/ml. MRT 81.8-188.2 hours; VDss 173.4-491.2 ml/kg. Cl 1.30-2.91 ml/hours.kg^{-1}. Parasite elimination in blood cycles was under the influence of plasma drug concentrations.

For future research, trials on other kinds of laboratory or fields subjects are recommended.