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Development of gummi drugs of Aripiprazole

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About a half of patients with schizophrenia have poor medication adherence, resulting in recurrence of schizophrenia. Gummi drugs, shaped confectionary dosage forms, can be easily chewed and swallowed without water. Schizophrenic patients could easily take this formulation daily, improving medication adherence. Our goal was to develop gummi drugs containing aripiprazole (ARP) using commercially available ARP products (Abilify®; Otsuka Pharmaceutical Co., Ltd., Tokyo, Japan). Three ARP formulations (orally disintegrating tablets, ODTs; powder formulations; and oral solutions) were modified to gummy drugs (OD-G, PW-G, and OS-G, respectively). Furthermore, we prepared improved OD-G (ARP-G), which contained high ARP content. In terms of appearance, OD-G and ARP-G were transparent white, PW-G was shiny opaque white, and OS-G was chalky white with a rough surface. Pharmaceutical characteristics of ARP-G were demonstrated to be suitable for hospital formulations, and ARP-G could be stored for ≤ 1 month. We assumed patients taking gummi drugs will chew and divide them into several pieces. Therefore, the dissolution test was conducted with ARP-G divided into 2 to 8 pieces. As the number of divisions increased, the speed of dissolution also increased. The average dissolution rate of ARP-G divided into 8 pieces was similar to that of tablets and ODTs. There were no significant differences in C_{max} and the AUC (0-24) between ARP-G and tablets after oral administration in Beagle dogs. In conclusion, we were able to develop ARP gummi drugs by using commercially available products as a hospital formulation. Because patients can easily take gummy drugs daily, ARP-G will help improve medication adherence.

Biography

Shinya Uchida received his PhD degree from University of Shizuoka in 1999. He served as clinical pharmacist at University Hospital of Hamamatsu School of Medicine. He is Associate Professor at University of Shizuoka and his major interests include clinical pharmaceutical science, clinical pharmacology and pharmacokinetics. He has published more than 50 papers in reputed journals.

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