

**ANALISIS SERI WAKTU TERHADAP EKSPRESI *GLUCOSE TRANSPORTER-1*
(GLUT-1) SEBAGAI PENANDA BIOLOGIS KLASIFIKASI DIABETES**

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ABSTRAK

Glucose transporter-1 (Glut-1) merupakan salah satu protein transport yang terdapat pada sel otot rangka. Glut-1 bertanggung jawab terhadap fasilitasi ambilan glukosa otot pada kondisi basal. Peningkatan kadar glukosa basal mengindikasikan Glut-1 terlibat dalam tahapan perkembangan penyakit diabetes mellitus. Penelitian ini bertujuan untuk menganalisis perubahan ekspresi Glut-1 setiap hari pada otot model tikus diabetes. Streptozotocin digunakan untuk menginduksi tikus menjadi model diabetes dengan cara menginjeksikan 150 mg/ kgBB secara intraperitoneal. Karakteristik model diabetes diperoleh sejak hari ke-1 setelah induksi STZ pada tikus. Glut-1 terekspresi meningkat bermakna pada hari ke-2 setelah induksi STZ, bersamaan dengan penurunan bermakna kadar glukosa puasa. Ekspresi Glut-1 tetap dipertahankan tinggi sampai dengan hari ke-3 observasi, meskipun kadar glukosa darah kembali meningkat pada saat yang sama. Peningkatan ekspresi Glut-1 otot menandai akhir fase reeversible yang diduga dapat memberikan prognosis baik bagi hasil terapi diabetes.

Kata kunci : ekspresi, Glut-1, penanda, klasifikasi, diabetes

Abstract

Glucose transporter-1 (Glut-1) is one of glucose transporter which found in skeletal muscle. Not like Glut-4, Glut1 is insulin independent in facilitating glucose diffusion across cell membrane. We suggest that Glut-1 expression in skeletal muscle membrane was not affected in diabetes mellitus. This study was aimed to investigate Glut-1 expression by time in skeletal muscle diabetic rat models. Streptozotocin (STZ) was used to induce diabetes in rat models. Intraperitoneal injection of 150 mg per BW STZ was administered to 18 rats in a single load. We sacrificed every 6 rats after the first, second and third day of STZ induction. Each rat models were analyzed for it blood fasting glucose, pancreas and gastrocnemius muscle. Hyperglycemic (more than 200 mg/dl) were found in the first day until the third day of STZ induction. Blood fasting glucose decreases significantly only at the second day of STZ induction, even though it still in hyperglycemic range. At the same day, Glut-1 expressions rise significantly at muscle membrane and keep in high expression until the next day. These findings are proven that Glut-1 is not only unaffected but also participating in physiologic defense against metabolic stress in diabetic models.

Keywords: Muscle, Glut-1, expression, diabetes