BioMed Research Journal

BMRJ, 3(S1): 13 www.scitcentral.com



Abstract: Open Access

Sperm Dynein ATPase Activity and AAA1-2 Expression: A Regulation in Asthenozoospermia

Silvia W Lestari^{1*}, Manggiasih², Dessy Noor Miati² and Meidika Dara Rizki²

^{*1}Department of Medical Biology, Faculty of Medicine, Universitas Indonesia, Jakarta, Indonesia

²Department of Biomedical Sciences, Faculty of Medicine, Universitas Indonesia, Jakarta, Indonesia.

Published November 01, 2019

ABSTRACT

Asthenozoospermia is a common cause of male infertility. It is characterized by reduced sperm motility and has numerous cellular mechanisms. Unfortunately, there are restricted data on dynein ATPase and ATPase associated with various cellular activities (AAA)1-2. This study explored the role of dynein ATPase activity and quantification of AAA1-2 dynein. Fifteen asthenozoospermia samples were used in this study. Semen analysis was conducted based on WHO 2010, while dynein ATPase was defined by the released inorganic phosphate and AAA was determined by ELISA. This study showed that the dynein ATPase activity in asthenozoospermia was significantly lower than in the normozoospermia group ($3.7 \pm 0.3 \text{ vs. } 7.5 \pm 0.4 \mu \text{mol Pi/mg protein/h}$, respectively, p<0.05). Furthermore, the quantification of AAA1 and AAA2 was showed unsignificantly lower in asthenozoospermia compared to normozoospermia group ($1.7 \pm 0.1 \text{ vs. } 4.5 \pm 0.2$; $3.8 \pm 0.4 \text{ vs. } 5.6 \pm 0.5 \text{ ng/ml}$, respectively, p>0.05). The structure and function of damaged sperm dynein may alter dynein ATPase activity and levels of AAA1 and AAA2 in asthenozoospermia.

Keywords: Dynein ATPase, AAA1, AAA2, Asthenozoospermia, Male infertility

Corresponding author: Silvia W Lestari, Department of Medical Biology, Faculty of Medicine, Universitas Indonesia, Jakarta, Indonesia, E-mail: finallysilvia@gmail.com

Citation: Lestari SW, Manggiasih, Miati DN & Rizki MD. (2019) Sperm Dynein ATPase Activity and AAA1-2 Expression: A Regulation in Asthenozoospermia. BioMed Res J, 3(S1): 13.

Copyright: ©2019 Lestari SW, Manggiasih, Miati DN & Rizki MD. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.