

**KORELASI KADAR *FIBROBLAST GROWTH FACTOR-2*, *ENDOTHELIN-1* DAN  
*ASYMMETRIC DIMETHYLARGININE* DENGAN AKTIVITAS PENYAKIT  
SKLEROSIS SISTEMIK**



**PROGRAM STUDI PENYAKIT DALAM PROGRAM SPESIALIS**

**DEPARTEMEN ILMU PENYAKIT DALAM**

**FAKULTAS KEDOKTERAN UNIVERSITAS ANDALAS**

**RSUP DR. M. DJAMIL PADANG**

**2024**

## ABSTRAK

### KORELASI KADAR *FIBROBLAST GROWTH FACTOR-2*, *ENDOTHELIN-1* DAN *ASYMMETRIC DIMETHYLARGININE* DENGAN AKTIVITAS PENYAKIT SKLEROSIS SISTEMIK

Ali Ardanny, Najirman\*, Eka Kurniawan\*

\*Divisi Reumatologi, Departemen Ilmu Penyakit Dalam

Fakultas Kedokteran, Universitas Andalas/RSUP Dr. M. Djamil Padang

**Pendahuluan :** Sklerosis sistemik atau *Systemic Sclerosis* (SSc) adalah suatu penyakit reumatik autoimun sistemik yang ditandai dengan adanya disfungsi imun, vaskulopati dan fibrosis. Manifestasi kulit karena proses fibrogenesis dan disfungsi endotel merupakan gejala yang paling umum pada SSc. Gejala dapat berupa penebalan dan pengerasan kulit akibat peningkatan kadar *Fibroblast Growth Factor-2* (FGF-2), *Endothelin-1* (ET-1) dan *Asymmetric Dimethylarginine* (ADMA). Aktivitas penyakit ini dapat diukur menggunakan *Modified Rodnan Skin Score* (mRSS) dengan cara menilai derajat penebalan dan pengerasan kulit pada 17 area tubuh.

**Metode:** Penelitian ini merupakan penelitian observasional analitik dengan pendekatan cross-sectional yang dilaksanakan di Poliklinik Reumatologi RSUP Dr. M. Djamil selama 6 bulan, 30 sampel yang memenuhi kriteria inklusi dan eksklusi dipilih secara *consecutive sampling*. Dilakukan pemeriksaan kadar FGF-2, ET-1 dan ADMA serum serta pemeriksaan mRSS pada pasien SSc. Selanjutnya dilakukan analisis statistik.

**Hasil :** Dari 30 sampel, seluruh subjek adalah perempuan, rerata usia 42 tahun dan rerata mRSS 27,7(6.8) Didapatkan peningkatan kadar FGF-2 dengan median 1064,05 (873,9-3465,6), ET-1 dengan median 223,84 (124,04-854,46), dan ADMA dengan rerata 777,45(386,39). Analisis dengan korelasi Spearman antara kadar FGF-2, ET-1, ADMA dengan aktivitas penyakit SSc (mRSS) didapatkan nilai  $r = 0,31$  dan  $p = 0,046$ ,  $r = 0,42$  dan  $p = 0,009$ ,  $r = 0,36$  dan  $p = 0,022$ .

**Kesimpulan :** Terdapat korelasi positif yang bermakna secara statistik antara kadar FGF-2, ET-1 dan ADMA dengan aktivitas penyakit SSc.

**Kata Kunci :** Sklerosis sistemik , penebalan dan pengerasan kulit, *Fibroblast Growth Factor-2*, *Endothelin-1*, dan *Asymmetric Dimethylarginine*, *Modified Rodnan Skin Score*

## ABSTRACT

### CORRELATION OF FIBROBLAST GROWTH FACTOR-2, ENDOTHELIN-1 AND ASYMMETRIC DIMETHYLARGININE LEVELS WITH SYSTEMIC SCLEROSIS DISEASE ACTIVITY

Ali Ardanny, Najirman\*, Eka Kurniawan\*

\*Division of Rheumatology, Internal Medicine Department

Faculty of Medicine, Andalas University/RSUP Dr. M. Djamil Padang

**Introduction:** Systemic sclerosis (SSc) is a systemic autoimmune rheumatic disease characterized by immune dysfunction, vasculopathy and fibrosis. Cutaneous manifestations due to fibrogenesis and endothelial dysfunction are the most common symptoms of SSc. The symptoms can include thickening and hardening of the skin due to increased levels of Fibroblast Growth Factor-2 (FGF-2), Endothelin-1 (ET-1) and Asymmetric Dimethylarginine (ADMA). This disease activity can be measured using the Modified Rodnan Skin Score (mRSS) by assessing the degree of thickening and hardening of the skin in 17 areas of the body.

**Method:** This research is an analytical observational study with a cross-sectional approach carried out at the Rheumatology out patient clinic, RSUP Dr. M. Djamil for 6 months, 30 samples that met the inclusion and exclusion criteria were selected by consecutive sampling. Serum levels of FGF-2, ET-1 and ADMA were examined and mRSS was measured in SSc patients. Furthermore, statistical analysis was carried out.

**Results:** From 30 samples included, all subjects were female, mean age was 42 years and mean mRSS was 27.7(6.8). There was an increase in FGF-2 levels with a median of 1064.05 (873.9-3465.6), ET-1 with a median of 223, 84 (124.04-854.46), and ADMA with an average of 777.45 (386.39). Analysis with Spearman correlation between levels of FGF-2, ET-1, ADMA and SSc disease activity (mRSS) showed values of  $r = 0.31$  and  $p = 0.046$ ,  $r = 0.42$  and  $p = 0.009$ ,  $r = 0.36$  and  $p = 0.022$ .

**Conclusion:** There was a statistically significant positive correlation between levels of FGF-2, ET-1 and ADMA with SSc disease activity.

**Keywords:** Systemic sclerosis, skin thickening and hardening, Fibroblast Growth Factor-2, Endothelin-1, and Asymmetric Dimethylarginine, Modified Rodnan Skin Score