Microcirculation is important to ensure adequate tissue oxygenation and nutrient delivery. Clinical findings, perfusion index (PI) measurements are used to assess microcirculation. Side stream dark field (SDF) imaging is a noninvasive method of assessing microcirculation by means of a videomicroscope.

This study aimed to assess microcirculation in healthy term newborns born either by spontaneous vaginal delivery (SVD) or caesarean section (C/S).

Methods The assessments were done within the first 30 min of life (T0) and repeated at the 24th hour of life (T1). Microcirculation was assessed from axillary skin by using SDF technique with Microscan device where total and perfused vessel density (TVD, PVD) and microvascular flow index (MFI) were calculated as well as by using microcirculation score (MS) based on capillary refill time, skin colour and warmth and PI measured by Masimo Radical7 pulse oximeter. Vital signs were also recorded. Nonparametric tests were used for statistical analysis.

Results Twelve newborns born by SVD and 25 newborns born C/S were included. The mean, SD, median values for temperature, TVD, PVD, MFI, MS, and PI at T0 and T1 are as follows:

T0: Temp: 36 ± 0.44(36.1), TVD: 18.79 ± 1.49(18.81), PVD: 18.73 ± 1.5(18.81), MFI: 3.07 ± 0.25(3), MS: 2.14 ± 1.36(2), PI: 1.84 ± 0.971(75).

T1: Temp: 37.1 ± 0.26(37.1), TVD: 18.93 ± 2.1(18.73), PVD: 18.9 ± 2.13(18.73), MFI: 3.17 ± 0.32(3.1), MS: 1.65 ± 0.48(2), PI: 1.9 ± 0.8(2).

Temperature was significantly and MFI was slightly higher at T1 compared to T0 (p = 0.001 and p = 0.04).

No difference was observed between SVD or C/S groups or at different times within the same group.

Conclusions Peripheral microcirculation in general is not affected by mode of delivery in term healthy newborns and doesn’t seem to change significantly within the first 24 h of life.