

Introduction

Sickle cell retinopathy (SCR) is a common retinal vascular complication in patients suffering from sickle cell disease (SCD), with proliferative sickle retinopathy (PSR) representing a major cause of preventable vision loss. Pregnancy leads to a myriad of physiological changes including haemodilution, hypercoagulability, oxidative stress, and fluctuating oxygen demand; all of which have been hypothesised to influence retinal perfusion and vaso-occlusive events. Rapid progression of diabetic retinopathy is very well known in pregnant diabetic patients, retinopathy changes during pregnancy in patients with sickle cell disease is however relatively unknown.

Purpose

This study aimed to investigate the presence and progression of sickle retinopathy during pregnancy

Design:

- Retrospective notes analysis
- Single eye-centre study
- Notes identification from sickle eye clinics attendance in 2025
- Inclusive sickle patients: Pregnancy at SWBH with valid child DOB

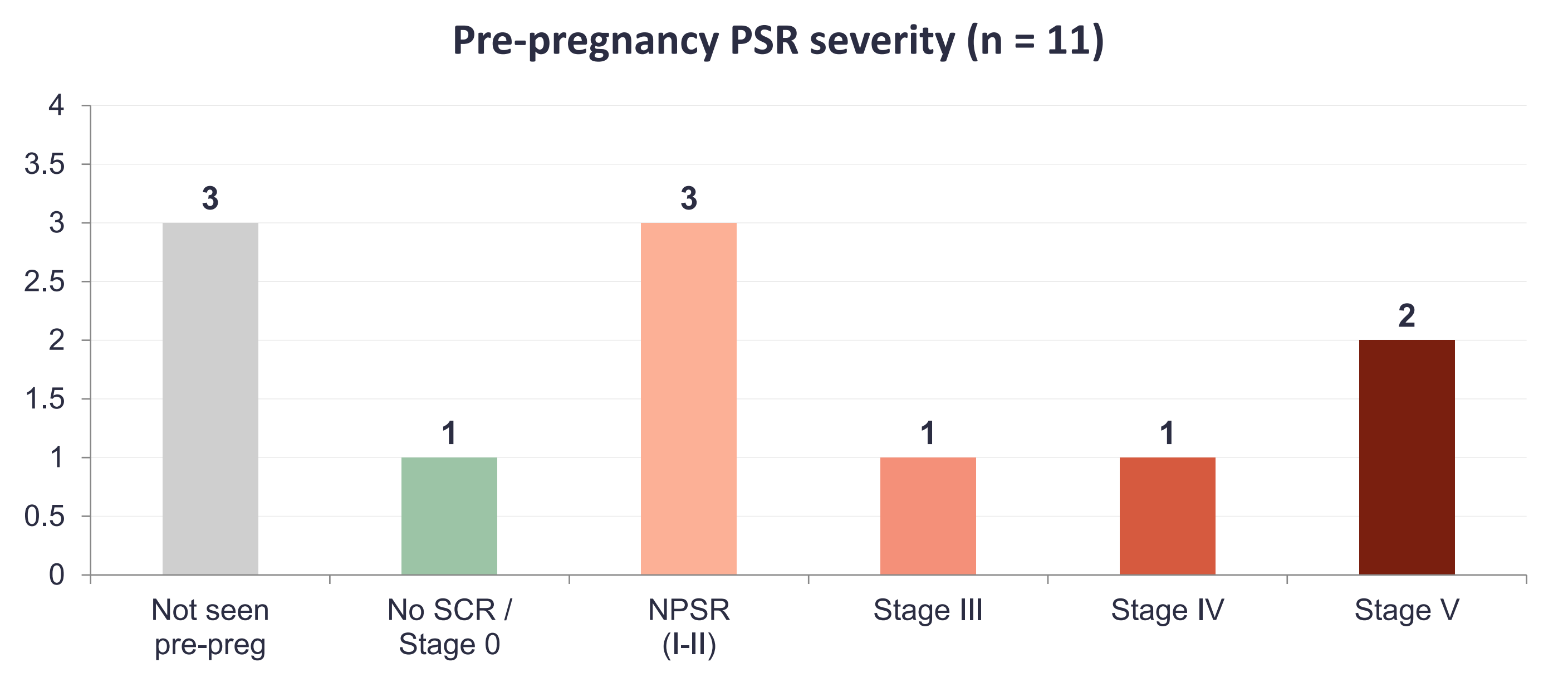
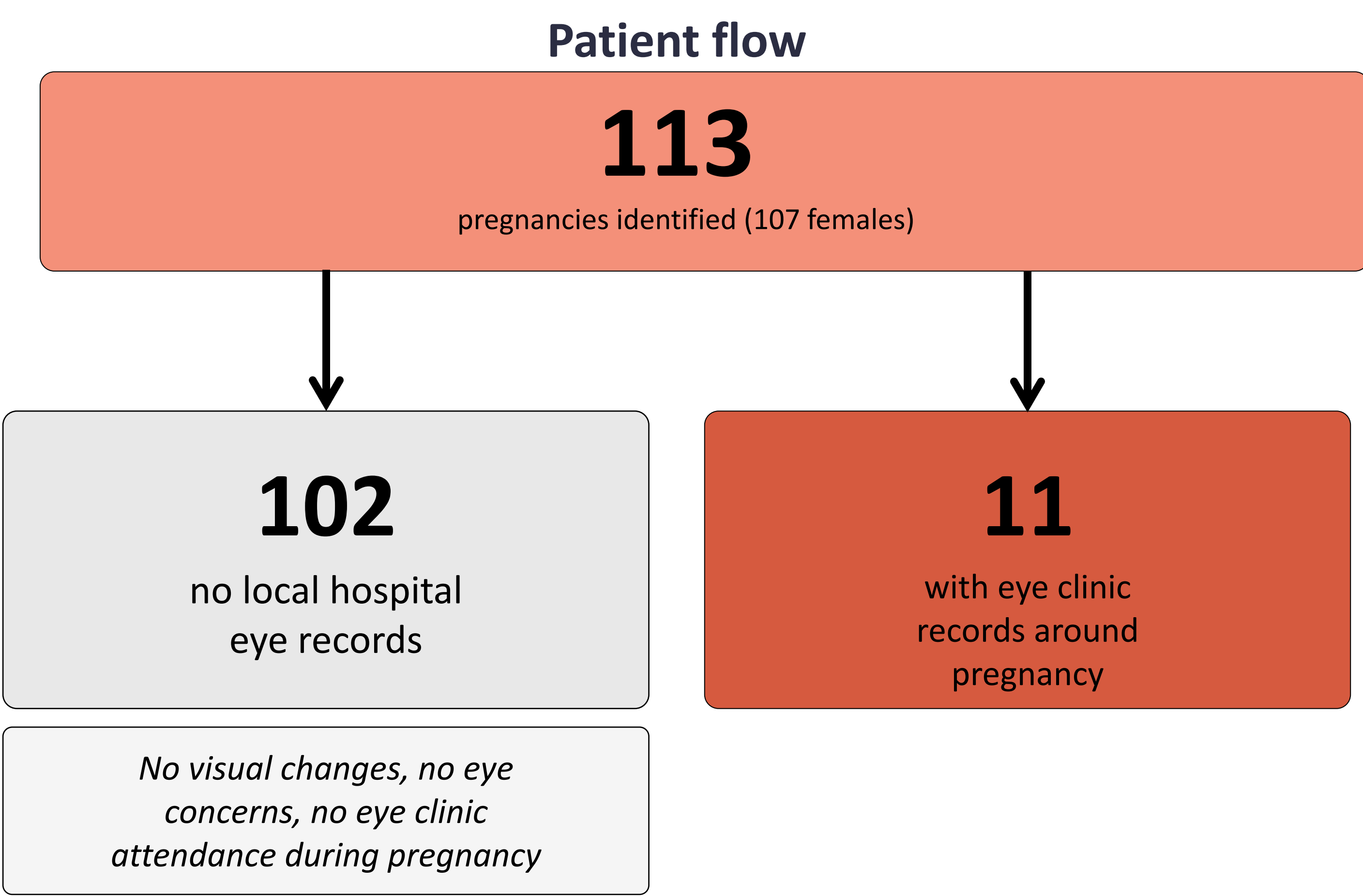
Non-proliferative retinopathy signs	Salmon patch, sunburst scar, iridescent spots, hue change, white-without-pressure
PSR Stage I	Peripheral arteriolar occlusion (ghost vessels, angiographic evidence)
PSR Stage II	Peripheral arteriovenous anastomosis (vascular remodelling)
PSR Stage III	Seafan retinal neovascularization
PSR Stage IV	Vitreous haemorrhage
PSR Stage V	Retinal detachment (tractional / rhegmatogenous)

Table 1. Goldberg Proliferative Sickle Retinopathy Staging (PSR) AJO, 1971

Results

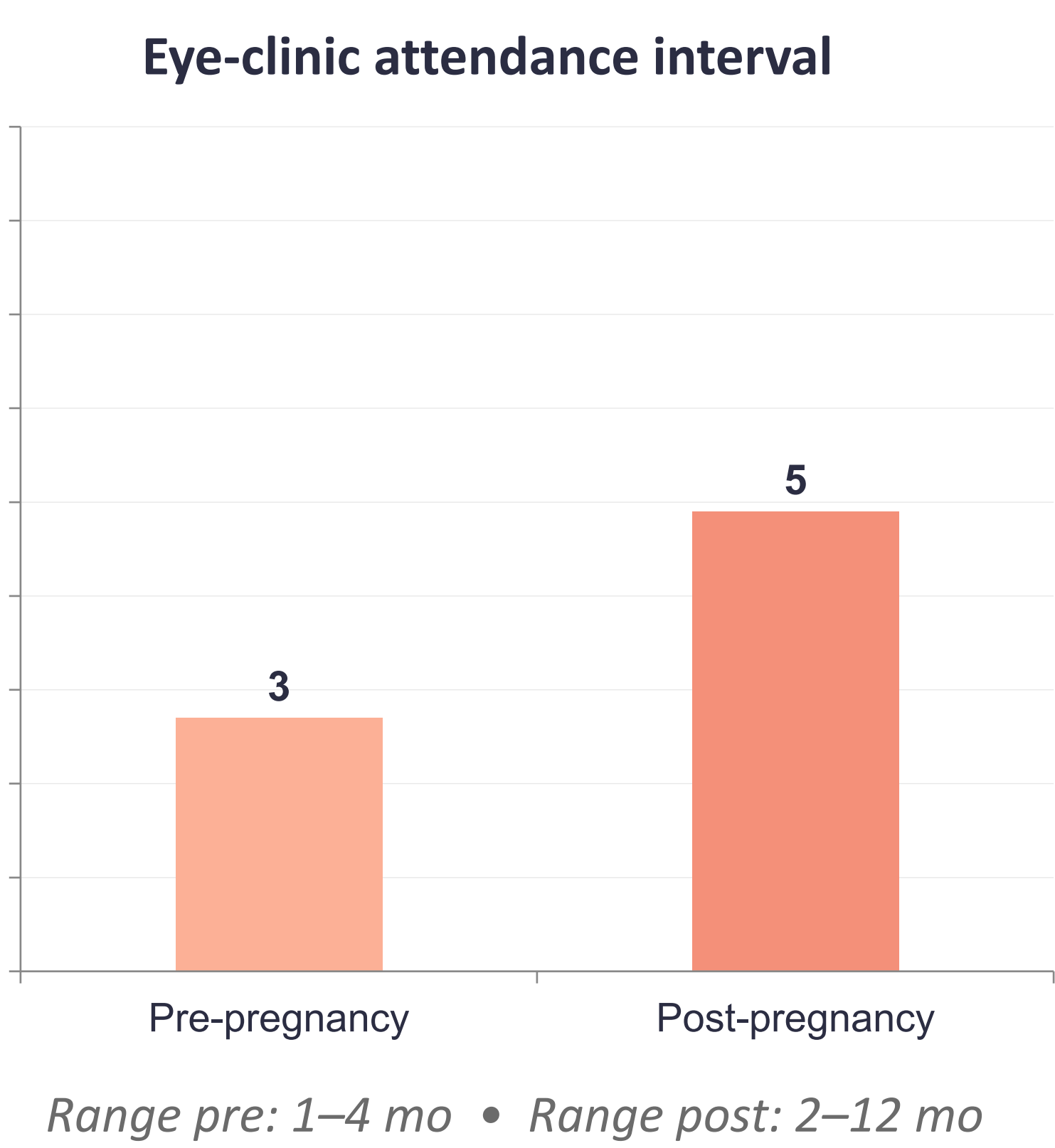
Identified 107 females with history of 113 pregnancies: 102 pregnancies had no local hospital records, 11 individual pregnancies had records of sickle eye clinic attendances around pregnancy period.

- 102 pregnancies with no local hospital record:** patients reported no visual changes or symptoms, no known eye concern, and no attendance to any eye clinic during pregnancies.
11 pregnancies with local hospital eye records:
 - Mean pregnancy age was 35.0 ± 5.2 years (range 25–42)
 - Sickle cell genotypes included HbSC (8), 1-HbSS (1), HbS Beta Thalassemia (2)
 - Recorded eye clinic attendance was mean 2.7 ± 1.5 months, (range 1-4 months) prior to conception; and mean 4.9 ± 3.6 months (range 2–12 months) post-pregnancy
 - 4/11 patients had records indicating severity of PSR stage 3 (or worse) in pre-pregnancy notes, only 10% had recorded progression of sickle retinopathy at “post-pregnancy” notes, with no co-existing diabetic retinopathy or other confounding factors
 - Recorded average vision was 6/6 right eye, 6/6.7 left eye (range 6/5 - 6/24) at “pre-pregnancy” and unchanged at “post-pregnancy”
 - No treatments were needed (retinal laser/ intravitreal therapy/ vitrectomy) during pregnancy, and no ocular complications (vitreous haemorrhage, retinal detachment) were recorded



Pregnancy outcomes (n = 11)	
Retinopathy progression	0 / 11
Ocular complications	0 / 11
Treatment required*	0 / 11
VA stable or improved	10 / 11
Sickle crises during pregnancy	2 / 11

*laser, intravitreal therapy or vitrectomy



Cohort at a glance

11

pregnancies analysed

35.0 ± 5.2

mean pregnancy age (yrs)

25 – 42

age range (yrs)

4 / 11

with $\geq$ stage III PSR pre-pregnancy

0 / 11

co-existing diabetic retinopathy

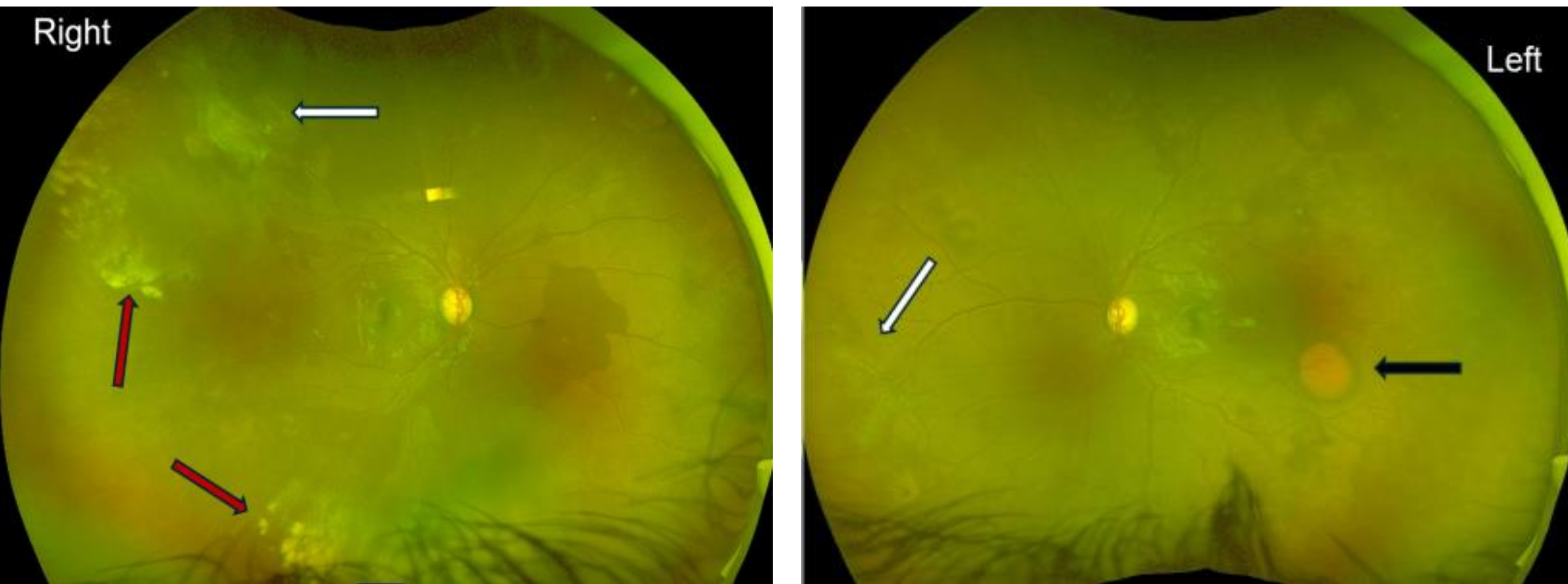


Figure 1. Typical fundus findings in sickle cell retinopathy. Auto-infarcted seafan scars on traction (white arrows), vitreous haemorrhage (red arrows), flat retina in the right eye. Salmon patch in mid-temporal retina of the left eye (black arrow).

Conclusion

Our retrospective analysis suggests that pregnancy does not appear to influence sickle cell retinopathy changes in the same way as in diabetic retinopathy. However, meaningful interpretation is limited by sparse and inconsistent ophthalmic follow-up. Prospective studies with standardised retinal imaging, defined pregnancy timepoints, and longitudinal assessment are needed to reliably determine whether pregnancy contributes to progression in sickle cell retinopathy.