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Women's Health Hospital

БИОЛОГИЧЕСКИ ФАКУЛТЕТ
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Association between human sperm defects and age

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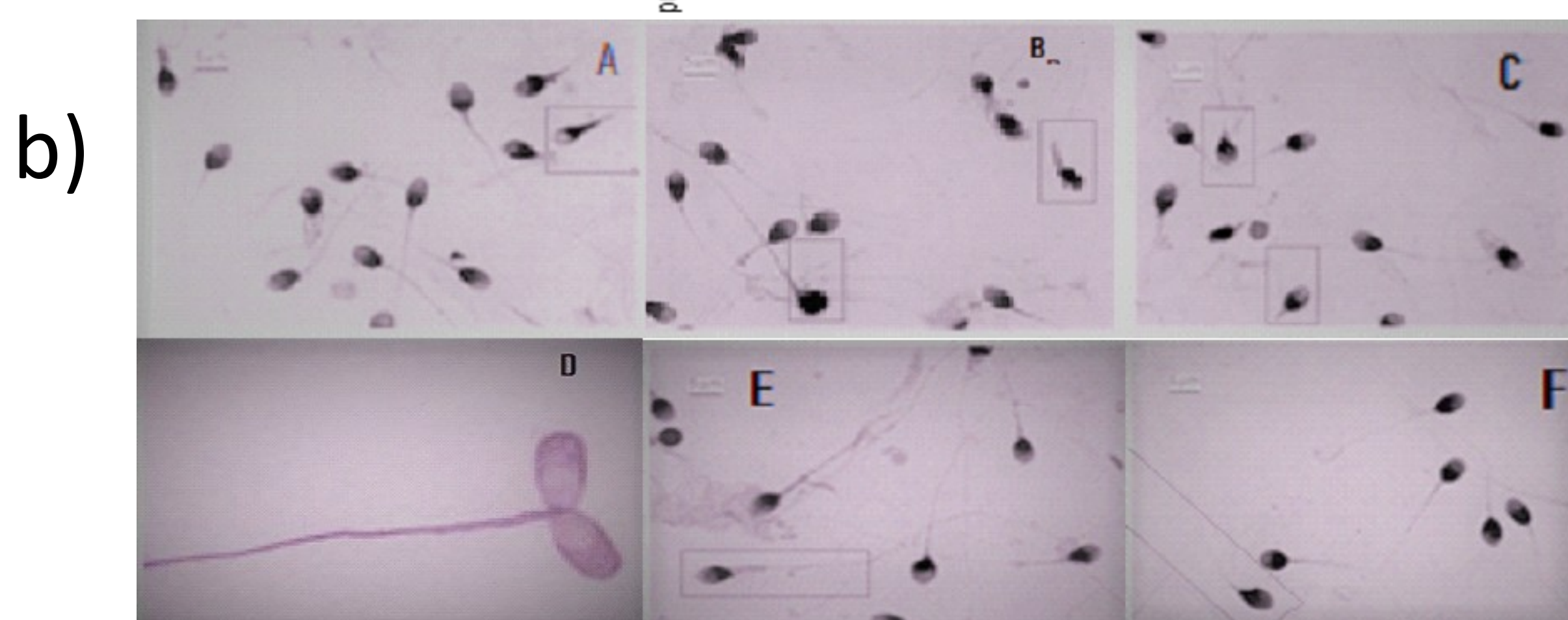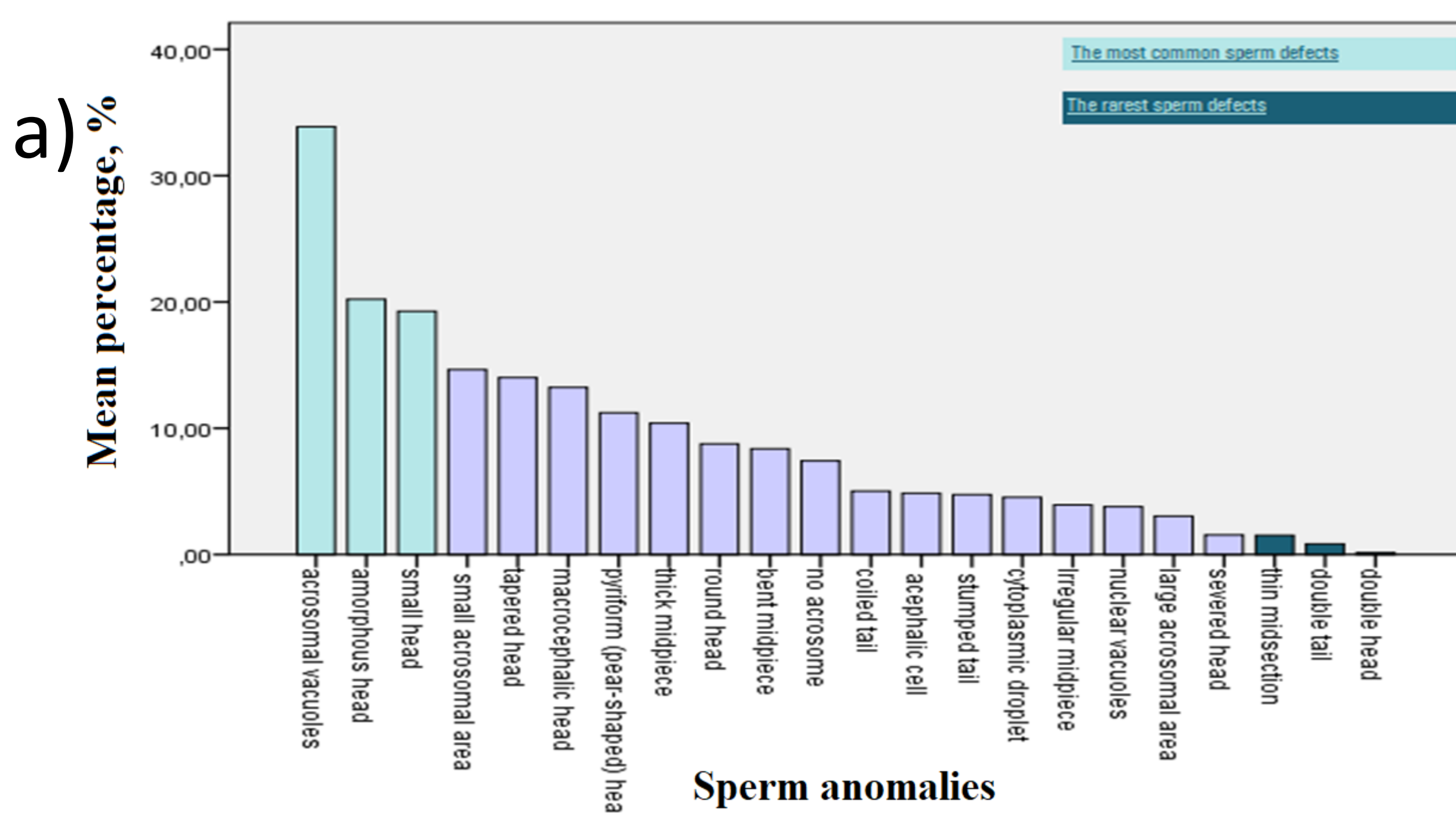*Corresponding author:* Dimitar Parvanov – dimparvanov@abv.bg

OBJECTIVE

Sperm morphology and the frequency of sperm abnormalities have been strongly linked with human fertilisation. Furthermore, age-relating infertility continues to be an increasing problem associated with semen quality. However, the influence of male age on sperm morphology is still barely studied.

The aim of this study was to assess the association between male age and sperm abnormalities.
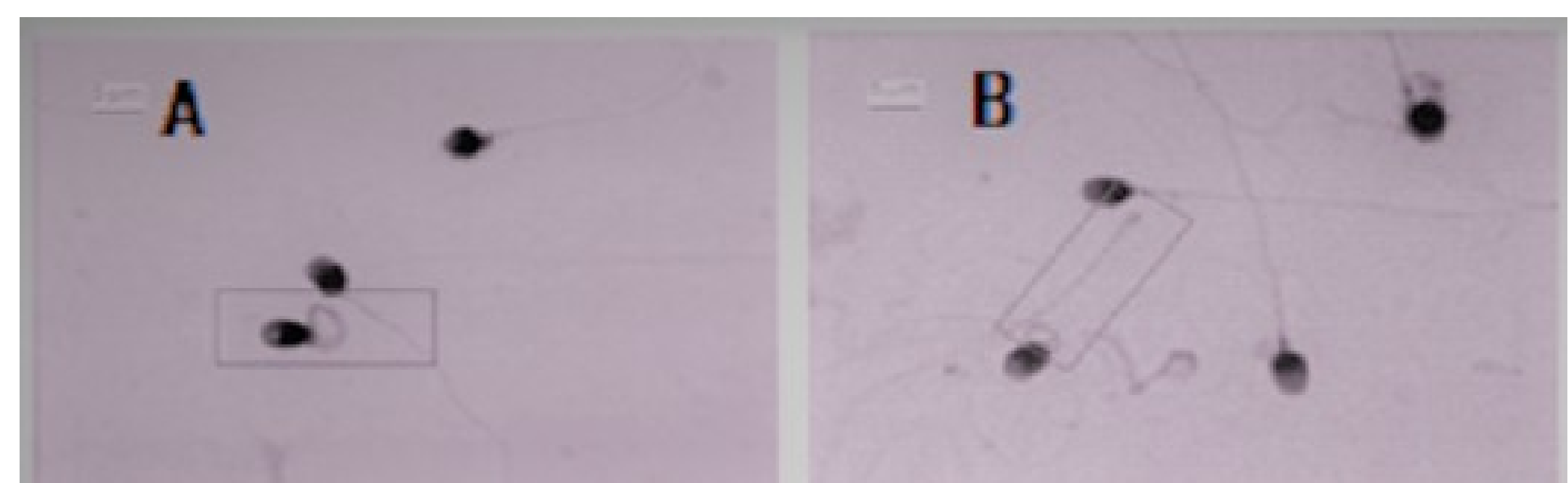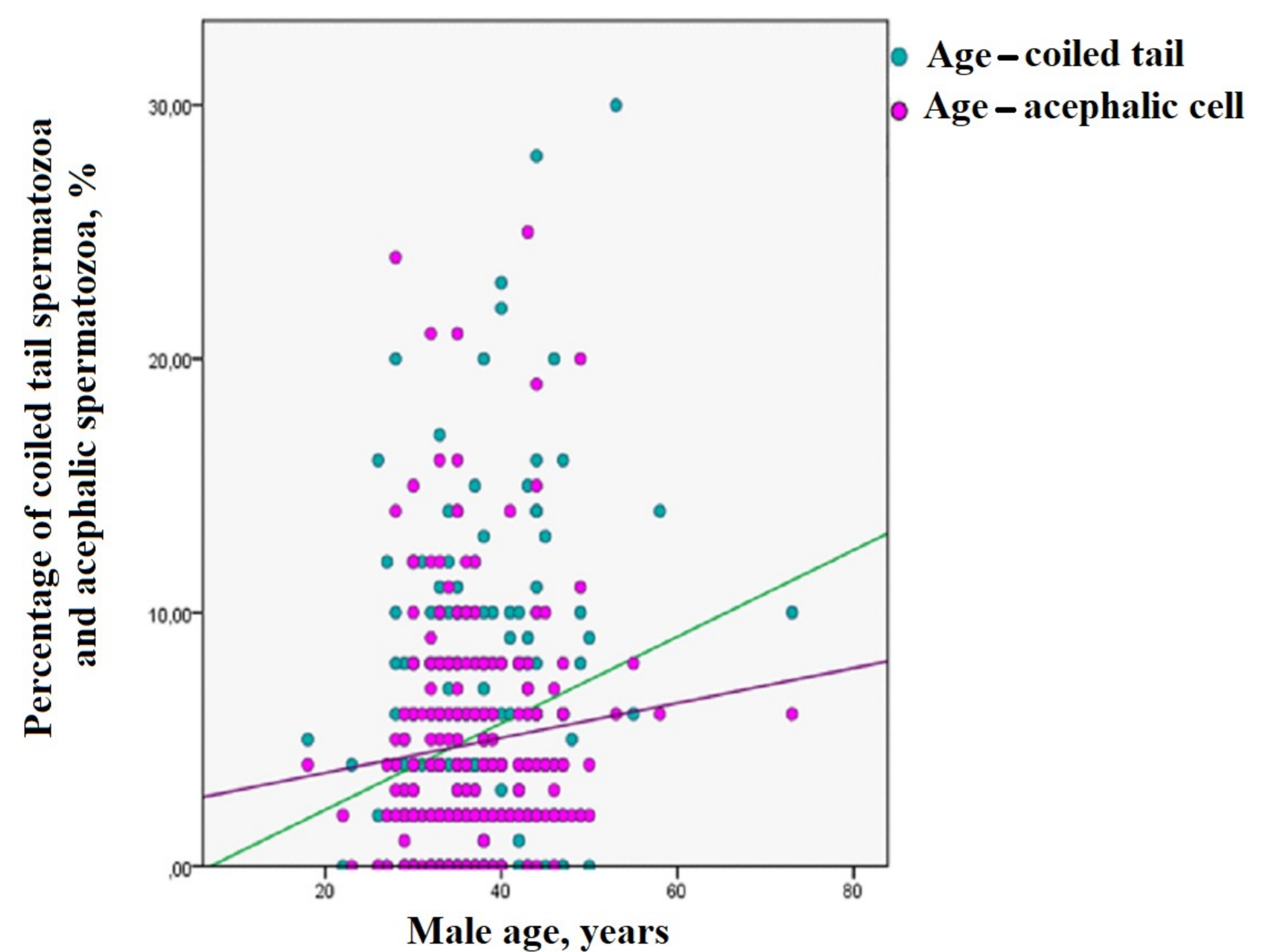
MATERIALS & METHODS

❖ 263 men aged between 18 and 73 years were selected.

❖ Twenty-three types of morphological abnormalities of the head, midpiece and tail were recorded.

❖ Tygerberg strict criteria were used to evaluate sperm morphology.

❖ The total number of head, midpiece and tail defects found in a sample was expressed as cumulative head, cumulative midpiece and cumulative tail defects, respectively.

❖ Statistical analysis was performed using SPSS v.21 (IBM Corp., Armonk, NY, USA). $P < 0.05$ was considered to be statistically significant.

Figure 1. (a) Bar charts representing the mean percentage of sperm abnormalities in the studied group (n=263). **(b)** Examples of the most common sperm anomalies (**A -** small head, **B -** amorphous head, **C-**acrosomal vacuoles) and the rarest sperm abnormalities (**D-**double head, **E-**double tail, **F-**thin midpiece).

RESULTS

❖ The most common sperm defects: small head (19.25%±12.42%), amorphous head (21.21%±11.32%), acrosomal vacuoles (33.88%±17.44%).

❖ The rarest sperm defects: double head (0.14%±0.57%), double tail (0.83%±1.38%), thin midpiece (1.52%±2,36%), and acephalic spermatozoa (1.55%±2.69%)

❖ A weak but significant positive relationship was observed between the age of men and the appearance of a winded tail (R= 0.138; p = 0.027) and the incidence rate of acephalus spermatozoa (R= 0.134; p = 0.031).

❖ Age is negatively associated with cumulative head defects (R = -0.146; p = 0.019).

Figure 2. Scatter plot representing the significant correlation between male age and the percentage of (a) coiled tailed spermatozoa and (b) acephalic spermatozoa.

CONCLUSION

Our study has shown that, relatively small number of sperm abnormalities has relation to men age.

The aging is associated with an increased percentage of coiled tail spermatozoa and acephalic spermatozoa.