

## ABSTRAK

Teknik migrasi sedimentasi adalah teknik preparasi yang jarang digunakan karena keterbatasan alatnya. Sebuah apparatus baru yang bernama gelas modifikasi telah diteliti namun kemampuannya belum pernah dibandingkan dengan teknik lain. Penelitian ini bertujuan untuk membandingkan konsentrasi, motilitas, dan morfologi normal spermatozoa pasca preparasi sperma dengan gelas modifikasi dan teknik *direct swim-up* (DSU).

Penelitian ini dilakukan di Departemen Biologi Kedokteran Fakultas Kedokteran Universitas Airlangga Surabaya. Sampel diperoleh dari 8 sukarelawan. Semua sampel dilakukan analisis semen awal berdasarkan metode WHO edisi ke-V. Semua sample dibagi dua dengan volume masing-masing 1 ml dan dilakukan preprasi sperma dengan teknik migrasi sedimentasi menggunakan gelas modifikasi dan teknik DSU dengan penambahan medium pencuci sperma sebanyak 1,3ml. Setelah inkubasi selama 1 jam pada suhu 37<sup>0</sup>C dan 5% CO<sub>2</sub>, kemudian diambil sebanyak 0,5 ml hasil tuaian pasca preparasi lalu dilakukan analisis sperma meliputi konsentrasi, motilitas, dan morfologi normal spermatozoa.

Hasil penelitian menunjukkan persentase motilitas spermatozoa pasca preparasi dengan gelas modifikasi lebih baik dan signifikan dibanding pasca DSU ( $p < 0,05$ ) yaitu motilitas progresif ( $97,25 \pm 1,982$  vs  $91,63 \pm 6,653$ ), imotil ( $1 \pm 0,535$  vs  $6,13 \pm 5,436$ ), dan total motilitas ( $99 \pm 0,535$  vs  $93,88 \pm 5,436$ ). Persentase morfologi normal spermatozoa pasca preparasi dengan gelas modifikasi juga menghasilkan nilai yang lebih tinggi dibanding DSU walaupun tidak berbeda signifikan ( $8,13 \pm 5,027$  vs  $7,25 \pm 4,062$ ). Sebaliknya konsentrasi spermatozoa pasca preparasi dengan DSU lebih tinggi walaupun pebedaannya tidak signifikan ( $2,77 \pm 1,303$  vs  $2,74 \pm 0,91$ ).

Kesimpulan, gelas modifikasi sebagai apparatus baru mampu menghasilkan motilitas sperma yang lebih baik dibanding DSU.

Kata kunci: preparasi sperma, *direct swim-up*, migrasi sedimentasi

## ABSTRACT

The sedimentation migration technique is rarely used because of the limitations of the device. A new device called modified glass has been investigated, but its capabilities have never been compared with others yet. This research was intended to compare the concentration, motility, and morphology of normal spermatozoa of post-preparation sperm with modified glass and a direct swim-up (DSU) technique.

This research was conducted at the Department of Medical Biology, Faculty of Medicine, Universitas Airlangga, Surabaya. Samples were obtained from 8 volunteers. All samples were subjected to initial semen analysis using WHO method of the fifth edition. All samples were then divided into two groups with a volume of 1 ml each, and a sperm preparation was carried out using a modified glass and DSU technique with the addition of a sperm washing medium of 1.3 ml. After being incubated for an hour at a temperature of 37°C and 5% CO<sub>2</sub>, 0.5 ml of the post-preparation harvest results were taken, and sperm analysis was carried out, including the concentration, motility, and normal morphology of spermatozoa.

The results indicated that the percentage of motility of spermatozoa after preparation spermatozoa using modified glass was significantly better compared to DSU. It's found that the progressive motility were  $97.25 \pm 1.982$  vs.  $91.63 \pm 6.653$  ( $p < 0,05$ ), immotile  $1 \pm 0.535$  vs.  $6.13 \pm 5.436$  ( $p < 0,05$ ), and total motility  $99 \pm 0.535$  vs.  $93.88 \pm 5.436$  ( $p < 0,05$ ). Percentage of normal morphology also produced higher values than DSU although not significantly different ( $8.13 \pm 5,027$  vs.  $7.25 \pm 4,062$ ). On the contrary, post-preparation spermatozoa concentrations using DSU were higher although they also did not produce a significant difference ( $2.77 \pm 1.303$  vs.  $2.74 \pm 0.91$ ).

As conclusion, the modified glass is able to produce better sperm motility than DSU.

Keywords: sperm preparation, direct swim-up, migration sedimentation