

ESTIMATION OF CARDIAC FLOW IN CHILDREN BY MEANS OF
IMAGING GATED PULSE DOPPLER

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Moving Target Indicator Cardiac Doppler /4MHz/ described
and applied previously /3/ in vessels and coronary grafts
imaging was modified to investigate the pediatric hearts
with congenital diseases.

The children with ventricular septal defects, atrial septal
defects, coarctation of aorta and pulmonary stenosis were
examined.

The device used in the investigation enables measurements
of blood flow in the small sample volume - transmission du-
ration of 4 μ s corresponds to ~ 3 mm in the tissue and the
diameter of the ultrasonic beam in the zone of weak focusing
is not greater than 5 mm.

Simultaneously the depth variable blood velocity distribution
is displayed on the screen by means of so called Imaging
Gated Pulse Doppler /IGPD/. The last one offers a great help
in proper positioning of the sample volume within the region
of the heart chamber under investigation. In order to mini-
mize the aliasing problem due to the range-velocity ambiguity
in pulse Doppler systems, the new type of alias tracking tech-
nique was implemented on the basis of Hartley approach /1/,
extending the workable range up to $-1/2PRF$ to PRF and with
some limitation even to $3/2PRF$. In terms of velocity it is
equal to 2.5m/s and 5m/s /angle 60°/ for PRF 6.7kHz and
13.4kHz respectively.

- 1.Hartley C.J.,Extending the velocity limits of pulsed Dopp-
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- 2.Nowicki A.,Reid J.,An infinite gate pulse Doppler,
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- 3.Nowicki A.,Reid J.,Pulse Doppler imaging system for eva-
luation of scortocoronary bypass graft patency.,Proc.26th
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